REPORT OF
COOPERATIVE BLISTER RUST CONTROL WORK
IN NORTHEASTERN STATES
DURING 1927.

By

E. C. Filler and K. K. Stimson

Boston, Mass. May 31, 1928.

OUTLINE AND INDEX FOR ANNUAL REPORT OF COOPERATIVE BLISTER RUST CONTROL WORK IN NORTHEASTERN STATES DURING 1927.

FOREWORD

This report is based on a summarization and analysis of the yearly BRE3a and BRE4F forms, submitted by the state leaders, and on general observations made by the federal supervisor. It summarizes the control work for all years, and especially gives the main facts regarding the 1927 activities. No attempt has been made to suggest remedies for any weaknesses, as detailed cooperative plans have been prepared for the 1928 work in each state, with the object of strengthening the organization and the work in general. As the state and federal offices have copies of these plans, it is not thought advisable to duplicate such information here. The last part of this report gives a summary of the agents' work during 1927. The agents' summaries are based on their weekly itineraries and monthly reports, and give a fairly good idea of results accomplished. However, no summaries of this type are entirely satisfactory, as many results are accomplished which cannot be definitely measured.

SUMMARY OF BLISTER RUST CONTROL ACTIVITIES IN NEW ENGLAND AND NEW YORK DURING THE TEN YEAR PERIOD 1918-1927, INCLUSIVE.

Acreage of pine: Pure, 2,679,587 acres; mixed, 2,774,507 acres; pine restocking in types other than pine, 2,767,073 acres; total, 8,221,167 acres - based on epidemiology survey of 1927.

Present policy: Ribes eradication work conducted by states in cooperation with individuals and towns - details of policy vary in different states - blister rust control agents, paid by the Federal Government, directly supervise all control activities in their districts.

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	381	$40,956.22	166	$27,560.00
	1922-1927	20,892	245,836.14	708	223,108.97
	Totals	21,273	$286,792.36	874	$250,668.97

Ribes eradication:	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
(Initial & Re-eradication)	1918-1921	1,036,903	14,491,503	$389,442.75	$.376
	1922-1927	4,920,670	46,757,904	867,054.94	.176
	Totals	5,957,573	61,249,407	$1,256,497.69	$.211

The initial control work has not been completed in any state. In Rhode Island, it will be finished during 1928, and in Connecticut, Massachusetts, and Vermont probably by 1930, but in the other states possibly not until 1932.

Cultivated Ribes destroyed: 1918-1921, 91,718 bushes; 1922-1927, 304,660 bushes; total for period 1918-1927, 396,378 bushes.

Compensation, 1922-1927: Number persons paid compensation - 389; total number bushes paid for - 17,092; total amount paid in reimbursement - $5725.84.

Ribes re-eradication: The above acreage includes 236,812 acres reworked since 1922. Of the total area reworked, 65.5 percent is in New Hampshire, and 18.4 percent in Massachusetts - no separate cost or Ribes figures are available for re-eradication work done prior to 1927.

State forests: Initial control work has been completed in all state forests in New England, except a few in Massachusetts. In New York, about 75 percent of the pine areas on state lands have been initially examined for Ribes.

Plantations: In all states, adequate measures are being applied to protect such areas in conjunction with the protection of natural pine. Most of the plantings in New England have been protected, but in New York, where 43,945,188 white pines have been planted up to and including 1927, there is considerable work of this type needed, especially outside the agents' districts.

Nursery sanitation: Initial control work and some re-eradication of Ribes has been completed in all nurseries growing white pine in Maine, New Hampshire, Vermont, and Rhode Island. In Connecticut, Massachusetts, and New York, this work is being conducted as rapidly as funds permit. In New York, where there are over 300 nurseries growing white pine, two agents are giving most of their time to this project and plantation inspection.

Ribes nigrum: All states are taking action to eliminate this species from the Northeast. New York, MASSACHUSETTS, and Rhode Island have laws prohibiting the possession of such bushes. In New Hampshire and southern Maine, the regular control work systematically eliminates all cultivated Ribes. In the other states, the regular control work causes the destruction of many of these bushes; but to do a complete job, special action will be necessary.

Blister rust surveys: Cultivated Ribes survey made in Massachusetts during 1917 - data compiled and a summary report prepared - used as a basis for later inspections and in eradication of Ribes nigrum. Detailed white pine surveys made in Vermont, Rhode Island, Connecticut, and parts of Maine and New York - field data summarized and pine areas plotted on maps - information used by agents in planning their work - detailed reports have been submitted on the completed surveys, and the information used for educational and supervisory purposes. Surveys on production, value and use of white pine and other woods completed in Vermont - production survey finished in Rhode Island - these data have been summarized and reports published - information used for educational purposes. A survey on forest resources in New Hampshire was completed by the State Forestry Department in 1924, and the data published in bulletin form. Strip line infection surveys were made during 1920 in New Hampshire, Maine, Vermont, New York and Massachusetts - the pines on rod wide strips, totaling 165.9 miles in length, were examined - a total of 42,274 pines were inspected and 10.2 percent were found infected - 256 plots, totaling 71.8 acres, were laid out adjacent to the strips; 27.7% of the 23,461 pines on these plots were diseased - the information has been used for educational purposes in various published statements. Survey made in all states to determine, by towns, forest conditions, especially white pine, Ribes, and infection - data summarized and maps being prepared at the Boston Office, as a basis for the epidemiology study.

Infection: General in the commercial white pine range, being especially severe in Essex and Warren Counties, New York; the northern Connecticut River Valley in Vermont and New Hampshire; and in southwestern Maine, notably in Lincoln County - based on town units, the percentage of diseased pine ranges from 1 to 30 percent of the total amount of pine - (see strip line data under "surveys"). Infection studies made, during 1925-1927, by examining the first ten infected pines found in each of 415 representative pine areas in the

Northeastern States showed cankers originating on the 4150 infected trees, as follows: Total cankers- 10,428, of which 22% originated up to 1917, 43% during 1918-1921, and 35% since 1921. In selecting infected trees, the agents naturally picked out specimens readily visible; consequently, the last group may underestimate general infection conditions since 1921. Over eighty percent of the infected pines ranged from 1-20 feet in height, as the agents selected trees which could be accurately examined.

Blister rust investigations: Demonstration areas of blister rust control established in all states - reports submitted on various studies - data used as a basis for determining costs of Ribes eradication, and for obtaining comparative figures. Effectiveness of control studies made in all states, except Vermont - reports submitted on these studies, but only Kittery Point study has been published. Blister rust damage plots laid out in all states, except Rhode Island - plots used for demonstration purposes and data summarized for educational use of agents. Detailed studies made in all states of spread and development of infection from definite sources, except in Rhode Island and Connecticut - reports submitted on each study, only Kittery Point study has been published. Cutting out of cankers experiment made in Massachusetts - part of the results published in bulletin form by Martin, Posey, and Gravatt. Sample forest type maps made of two towns,(Dover and Kensington) in New Hampshire and one in Massachusetts, (Duxbury) - detailed maps and estimates prepared - established effective method of mapping and estimating; town data used by agents for educational purposes and as a basis for control work. Selective eradication and Ribes ecology studies made by Fivaz in New York - preliminary reports submitted. Skunk currant study by Clave and Perry in Massachusetts - preliminary report given at annual conference showed only restricted spread of disease from such bushes. Crew method study by Riley in Connecticut - preliminary report presents no definite conclusions.

Future work: Complete initial eradication, 4,555,695 acres (Basis; total pine acreage (Pure- Mixed - area restocking) plus an additional one-fourth acreage for protection strips - area cleared of Ribes). Re-examination of present control areas containing 5,746,511 acres, estimate 50% or 2,873,255 acres of this total will need to be reworked - elimination of Ribes nigrum - adequate nursery sanitation measures applied to all nurseries - examination of white pine plantations and their protection - studies regarding blister rust damage, spread of the disease, Ribes ecology, chemical eradication of Ribes, epidemiology of the rust, Ribes regrowth and effectiveness of control - improvement of control practices - development of permanent control measures.

SUMMARY, BY STATES, OF BLISTER RUST CONTROL ACTIVITIES IN NORTHEASTERN AND LAKE STATES DURING THE TEN YEAR PERIOD 1918-1927, INCLUSIVE.

MAINE

Acreage of pine: Pure, 588,450 acres; mixed, 1,040,060 acres; pine restocking in types other than pine, 1,549,367 acres; total, 3,177,877 acres.

Present policy: Cooperation with towns and individuals - state scouts used to examine town areas and to denote sections requiring systematic work, which will be done by pine owners, under the direction of foremen paid from town money. (About 85 percent of the total acreage is worked entirely by scouts.)

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	30	$1,163.07	0	0
	1922-1927	7765	52,063.27	230	$39,571.25
	Totals	7795	$53,226.34	230	$39,571.25

Ribes eradication:	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
(Initial and re-eradication)	1918-1921	180,630	660,308	$19,708.14	$.109
	1922-1927	1,768,484	10,993,969	114,490.89	.065
	Totals	1,949,114	11,654,277	$134,199.03	$.069

Cultivated Ribes destroyed: 1918-1921, 1579 bushes; 1922-1927, 70,210 bushes; total for period 1918-1927, 71,789 bushes.

Compensation - 1922-1927: None.

Ribes re-eradication: The above acreage includes 3,642 acres reworked since 1922.

State forests: None in Maine - the National Park on Mt. Desert Island will probably be worked during 1928.

Plantations: Protection received in general control campaign - compared with other states, not much pine planting done in Maine.

Nursery sanitation: All nurseries protected - only a few nurseries in the state - most of the nurseries have been re-eradicated.

Ribes nigrum: The control policy in Maine eliminates cultivated Ribes near pine; therefore, no special campaign needed to eradicate black currants. Many Ribes americanum are cultivated in Maine, but apparently few Ribes nigrum.

Blister rust surveys: During 1920 and 1921, the white pine types were mapped in several towns in Maine - Briscoe had maps and a report prepared on this work - maps used as a basis for control work and an estimate of pine values. Strip line infection survey made by Frost in 1920 - the pines on rod wide strips totalling 38.5 miles in length were examined - a total of 7046 pines were inspected, and 6.3% were found infected - 11 plots, totalling 2.7 acres, were laid out adjacent to the strips, 14.4% of the 970 pines in these plots were diseased - data used for educational purposes. Epidemiology survey made during 1926, by agents and Hirt, of white pine and other forest types, Ribes, and infection conditions - maps and summaries being prepared at Boston Office.

Infection: General in commercial range of white pine - based on town units, the percentage of diseased pine ranges from 1 to 10 percent of the total amount of pine - most of the infection has originated since 1918, and is especially abundant in southwestern Maine, notably in Lincoln County - oldest infection, located at Kittery Point, apparently originated in 1897 from cultivated black currants imported from England.

Investigations: Demonstration control areas at Kittery Point and Brunswick - very little data on these studies available. Infection and effectiveness of control study made by Posey at Kittery Point - report published. Many pine damage plots laid out by agents - used for demonstration purposes - infection data summarized and used by agents in educational work.

Office: Records and maps showing control work, by years, in fair shape - more such work needed, especially by Curtis and Conner.

Future work: Complete initial eradication - 2,026,878 acres (basis: total pine acreage (pure, mixed, and area restocking to pine) and an additional ¼ acreage for protection strips - area cleared of Ribes) - Re-examination of all control areas, 1,945,472 acres, estimate 50 percent, or 972,736 acres, will need to be reworked - studies to determine Ribes regrowth and effectiveness of control - elimination of Ribes nigrum from sections not covered by control work.

NEW HAMPSHIRE

Acreage of pine: Pure, 806,977 acres; mixed, 569,487 acres; pine restocking in types other than pine, 304,790 acres; total 1,681,254 acres.

Present policy: Cooperation with towns, state paying 20 percent of costs - control work performed on definite town blocks irrespective of property lines - same cooperation also obtained from individuals.

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	162	$10,317.48	162	$25,860.00
	1922-1927	409	28,163.77	463	179,440.00
	Totals	571	$38,481.25	625	$205,300.00

Ribes eradication:	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
(Initial and re-eradication)	1918-1921	571,625	6,397,207	$116,739.79	$.204
	1922-1927	1,471,210	18,425,589	264,232.80	.18
	Totals	2,042,835	24,822,796	$380,972.59	$.186
In addition on White Mt. National Forest	1924-1927	6,384	142,556	$2,271.24	$.356

Cultivated Ribes destroyed: 1918-1921, 61,517 bushes; 1922-1927, 62,030 bushes; total for period 1918-1927, 123,547 bushes.

Compensation - 1922-1927: Number persons paid compensation - 19; total number bushes paid for - 502; total amount paid in reimbursement - $122.42.

Ribes re-eradication: The above acreage includes 155,112 acres reworked since 1922.

Public forests: Initial control work performed in all pine areas of state and national forests.

Plantations: Protection secured in general control program - inspection of plantations begun by agents in 1927.

Nursery sanitation: All nurseries protected - only two commercial nurseries in the state.

Ribes nigrum: The control policy in New Hampshire systematically eliminates cultivated Ribes; therefore, no special campaign is needed to eradicate black currants. Most of the eradication has been conducted in the section of the state where the greater portion of black currants existed.

Blister rust surveys: Because of the even distribution of white pine, a general mapping of white pine areas is not necessary, especially as the recent epidemiology study gave town information on white pine and other forest types, Ribes, and infection conditions. During 1919, detailed forest type maps were made of the towns of Dover and Kensington - established effective method of mapping and estimating - town data used as a basis for control work and for educational purposes. Three years ago, the State Forestry Department completed a forest resource survey, which showed 50 percent of the wood products in New Hampshire are made of white pine. The annual cut of this species varies from 55 to 65 percent of the total lumber cut in the state. Strip line infection survey made in 1920 - the pines on rod wide strips, totalling 54.5 miles in length, were examined - a total of 9919 pines were inspected, and 13 percent were found infected - 213 plots, totalling 49.1 acres, were laid out adjacent to the strips; 51.5 percent of the 7014 pines in these plots were diseased.

Infection: General in commercial pine range, especially severe in northern Connecticut River Valley region - based on town units, the percent of diseased pine ranges from 1-30 percent of the total amount of pine. Also, see strip line data given under "Blister Rust Surveys".

Investigations: Demonstration control areas established at Conway and Wolfeboro - latter area re-checked during 1927 - a report is being prepared by Endersbee on this study. Detailed infection studies made by Endersbee at Hooksett, Hampstead, Sunapee, and Littleton - (reports submitted); by Posey, at Deerfield and Lisbon - (no report); by Richards, at Temple - (preliminary report only). Many damage and demonstration plots laid out by agents - used for educational purposes. Ribes regrowth study made by Newman at Newmarket - (no report submitted).

Office: Maps and records show control work by years - however, most of the early detailed records, by blocks, have been lost or were kept in such poor shape as to be of little value - data since 1922 O.K.

Future work: Complete initial Ribes eradication - 213,844 acres, (basis: total pine acreage (pure, mixed, and area restocking to pine) plus an additional one-fourth acreage for protection strips - area cleared of Ribes) - Re-examination of initial control areas, 1,887,723 acres, estimate 50 percent, or 943,861 acres, will need to be reworked - Special survey of pine, Ribes, and infection conditions in backward towns - Studies to determine Ribes regrowth and effectiveness of control.

VERMONT

Acreage of pine: Pure, 103,376 acres; mixed, 238,562 acres; pine restocking in types other than pine, 284,253 acres; total, 626,191 acres.

Present policy: Cooperation with individual owners, who pay all eradication costs, except excess labor charges for state foremen. In few instances, town money obtained to pay the excess labor charge.

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	61	$4,021.11	0	0
	1922-1927	1265	43,309.79	8	$496.30
	Totals	1326	$47,330.90	8	$496.30

Ribes eradication: (Initial and re-eradication)	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
	1918-1921	17,978	272,425	$14,252.51	$.793
	1922-1927	133,067	1,523,987	51,474.20	.387
	Totals	151,045	1,796,412	$65,726.71	$.435

Cultivated Ribes destroyed: 1918-1921, 282 bushes; 1922-1927, 4996 bushes; total for period 1918-1927, 5278 bushes.

Compensation, 1922-1927: Number persons paid compensation - 103; total number bushes paid for - 1265; total amount paid in reimbursement - $614.16.

Ribes re-eradication: The above acreage includes 11,775 acres reworked since 1922.

State forests: Initial control work performed on all pine areas of state forests.

Plantations: State office has complete record - agents supplied with this information - protection secured in general control campaign.

Nursery sanitation: Exclusive of state nurseries, which have been protected from blister rust, there are no nurseries growing white pine where sanitation measures are necessary.

Ribes nigrum: Apparently, few such bushes in state - no definite survey made or campaign for their eradication, except in conjunction with agents' regular activities.

Blister rust surveys: (1) White pine areas of state - data suitably recorded on maps for each agent's use. (2) Strip line infection survey made in 1920. The pines on rod wide strips totaling 28 miles in length were examined - a

total of 4002 pines were inspected and 3.1% found diseased. (3) Production, value and use of white pine and other woods - data summarized for entire state, and about to be published in bulletin form. (4) Epidemiology survey of white pine and other forest types, Ribes and infection conditions made during 1926. Map and summaries being prepared at Boston Office.

Infection: General throughout the commercial pine range of state, being especially severe in northern Connecticut River Valley region - based on town units, the percent of diseased pine ranges from 1-30 percent of the total amount of pine - also, see strip line data under "Surveys".

Investigations: Demonstration control areas at Thetford and Fairlee, Vermont - preliminary reports submitted - no follow up work done. Ribes regrowth studies made by Merrill, and reported at 1927 annual conference. Blister rust damage study of merchantable pine made by Filler at Waterford, Vermont - report submitted. Six quarter acre infection plots laid out by agents - also six demonstration plots showing white pine thinning and protection.

Office records: Maps and card records showing pine location, control areas, plantations, and infection, are in good shape.

Future work: Complete initial Ribes eradication, 373,637 acres - (basis: pine acreage (pure and mixed) plus an additional one-fourth acreage for protection strips - area cleared of Ribes.) In addition, there are 284,253 acres of other types restocking to pine, which may need protection - Re-examination of initial control areas, 139,270 acres, estimate at least 50%, or 69,635 acres, will need to be reworked - Systematic survey to eliminate Ribes nigrum from state - Study to determine regrowth of Ribes and effectiveness of control.

MASSACHUSETTS

Acreage of pine: Pure, 450,799 acres; mixed, 337,031 acres; pine restocking in types other than pine, 270,539 acres; total, 1,058,369 acres.

Present policy: Cooperation with individuals - state scouts used to examine town areas and to denote sections requiring systematic work, which will be done by pine owners, under the direction of state foremen.

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	81	$5,886.22	4	$1700.00
	1922-1927	9456	43,960.94	0	0
	Totals	9537	$49,847.16	4	$1700.00

Ribes eradication: (Initial and re-eradication)	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
	1918-1921	81,877	2,425,218	$44,674.90	$.546
	1922-1927	1,104,668	8,269,885	151,327.43	.137
	Totals	1,186,545	10,695,103	$196,002.33	$.165

Cultivated Ribes destroyed: 1918-1921, 10,345 bushes; 1922-1927, 146,991 bushes; total for period 1918-1927, 157,336 bushes.

Compensation, 1922-1927: Number persons paid compensation - 139; total number bushes paid for - 13,763; total amount paid in reimbursement - $4448.30.

Ribes re-eradication: The above acreage includes 43,597 acres reworked since 1922.

State forests: Initial control work has been completed on practically all pine areas in the state forests.

Plantations: Protection secured in general control program.

Nursery sanitation: Environs of main nurseries protected - work now being continued in less important nurseries.

Ribes nigrum: In control areas, such bushes eradicated in conjunction with wild Ribes eradication. However, in many parts of the state, it will probably be necessary to conduct a special survey. A state law prohibits the possession of such bushes.

Blister rust surveys: Cultivated Ribes census throughout entire state in 1917 - data compiled and a summary report prepared - used as a basis for inspections and eradication of Ribes nigrum. During 1920, strip line infection survey was made - the pines on a rod wide strip totalling 4.4 miles in length were examined - a total of 871 pines were inspected and 5.7% were found infected - 9 plots, totalling 3 acres, were laid out adjacent to the strips; 27% of the 637 pines in these plots were diseased.- epidemiology survey by agents during 1926 of white pine and other types, Ribes, and infection - maps and summaries being prepared at Boston Office.

Infection: General, but spotted and light, especially in eastern and central parts of the state. In these sections, most of the infections are old ones caused by Ribes nigrum; eradication of most of these bushes in 1917 had decided effect in checking spread of disease, as wild Ribes are localized in these sections. Also, see strip line data under "Blister Rust Surveys".

Investigations: Demonstration control areas established at Barre and Pembroke - no check-up study advisable. Pine infection study made by Root at Pembroke, also infection studies made by Pickler at Sandisfield, and by Hodgkins at Swanzey - reports submitted. Cutting out of cankers studies made by Martin at Ipswich, and by Hodgkins at Pembroke - published report by Martin. Damage plots laid out by agents in western Massachusetts - used for demonstration and educational purposes. Sample forest type map made of Duxbury - basis for control work. Skunk currant study started by Clave during 1927 - report presented at annual conference showed only limited spread of disease from such Ribes.

Office: Records and maps for the most part in good shape - more such work needed by Roop and McNerney.

Future work: Complete initial eradication 180,013 acres (Basis: total pine acreage (pure, mixed, and area of other types restocking to pine) plus $\frac{1}{4}$ additional acreage for protection strips - area cleared of Ribes) - Re-examination of control areas totalling 1,142,948 acres, estimate 50 percent of this acreage will need to be reworked - elimination of Ribes nigrum throughout state-completion of nursery sanitation - study of Ribes regrowth and effectiveness of control - complete skunk currant study.

RHODE ISLAND

Acreage of pine: Pure, 13,779 acres; restocking of pine in types other than pine, 59,417 acres; total, 73,196 acres - also considerable acreage of potential pine land.

Present policy: All control work done by 5 state scouts, as Ribes number less than one per acre and are very localized.

Cooperation: No cooperation solicited, except in 1918, 1923, and 1924, when eight individuals gave $581.36 for conducting general control work in the state.

Ribes eradication:	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
(Initial and	1918-1921	103,261	85,493	$16,761.55	$.162
re-eradication)	1922-1927	158,870	102,859	11,182.10	.07
	Totals	262,131	188,352	$27,943.65	$.107

Cultivated Ribes destroyed: 1918-1921, 4251 bushes; 1922-1927, 7201 bushes; total for period 1918-1927, 11,452 bushes.

Compensation - 1922-1927: Number persons paid compensation - 7; total number bushes paid for - 94; total amount paid in reimbursement- $35.85.

Ribes re-eradication: The above acreage includes 10,910 acres reworked since 1922.

State forests: The one state forest has been protected.

Plantations: All plantations in control areas have been protected, but those outside have not been worked - not much planting done in this state.

Nursery sanitation: Only a few ornamental pines are grown by the Rhode Island nurseries. Such trees and environs have been inspected by state men.

Ribes nigrum: Systematic campaign to eliminate these bushes from state will be started during 1928 - the towns in the control areas will be examined first - state has prohibited the possession of such bushes.

Blister rust surveys: Rough survey made by Sheals of white pine areas in state - used as basis for control work and for educational purposes. Epidemiology survey, during 1926, of white pine and other types, Ribes and infection conditions - data summarized at Boston Office. Survey of production of white pine in state for year 1925, by Anderson, report prepared and published in News Letter - Survey of Ribes nigrum in two towns by Hurford in 1927 - gave report of study at annual conference.

Infection: Few spots, mostly from cultivated black currants - many of the infections have been cut out.

Investigations: Study of Ribes regrowth and effectiveness of control by Anderson, report prepared by Anderson and Fivaz.

Office: Records of control work in good shape.

Future work: Complete initial eradication of potential pine land, estimate 30,000 acres - re-examination of all control areas (251,221 acres) and eradication of Ribes in all likely sites (40,000 acres), such as; swamps, stream courses, fence rows, walls, cellarholes and roadways. This check work in likely sites will take a four man crew at least two seasons - elimination of Ribes nigrum from state - report of all control work in state - survey of forest types and an estimate of their contents.

CONNECTICUT

Acreage of pine: Pure, 73,426 acres; mixed, 124,345 acres; pine restocking in types other than pine, 47,873 acres; total 245,644 acres.

Present Policy: In Litchfield County, where pine and Ribes are more or less generally distributed, cooperation is conducted with individuals and towns, foremen and scouts being furnished by the state. Outside Litchfield County, Ribes are comparatively few and localized; consequently, the control work is limited to scouting performed by state men.

Cooperation:	Period	No. Individuals	Individual Expenditures	No. Town Appropriations	Town Money Appropriated
	1918-1921	0	0	0	0
	1922-1927	241	$5729.44	7	$3601.42
	Totals	241	$5729.44	7	$3601.42

Ribes eradication: (Initial and re-eradication)	Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
	1918-1921	13,470	125,271	$6,962.11	$.517
	1922-1927	96,719	1,328,233	36,687.22	.379
	Totals	110,189	1,453,504	$43,649.33	$.396

Cultivated Ribes destroyed: 1918-1921, 8 bushes; 1922-1927, 4917 bushes; total for period 1918-1927, 4925 bushes.

Compensation, 1922-1927: None paid.

Ribes re-eradication: The above acreage includes 11,776 acres reworked since 1924.

State forests: The state forests contain very little pine - protection work has been carried on where necessary.

Plantations: The station forester has a good record of pine plantings, and these are gradually being inspected, even those outside the control areas.

Nursery sanitation: Not much protection work was done around pine growing nurseries until last year. This project will be given increased attention during 1928 and 1929.

Ribes nigrum: No systematic work done to eliminate these bushes from state.

Blister rust surveys: During 1920 and 1921, all pine areas in the commercial pine range were mapped on U.S.G.S. sheets, and an estimate made of their contents - data used as a basis for control work and for educational purposes. Epidemiology survey during 1926 of white pine and other types, Ribes and infection conditions - data being summarized at Boston Office.

Infection: General in northern Litchfield County - only spot infections, mostly old cankers, in remainder of state.

Investigations: Ribes regrowth and effectiveness of control study by Endersbee, report prepared - crew experiment by Riley, preliminary report submitted.

Office: Records and maps in excellent shape.

Future work: Complete initial eradication 208,642 acres (basis: total pine acreage (pure, mixed, and acreage of other types restocking to pine) plus one-fourth acreage for protection strips - area cleared of Ribes.) Re-examination of control areas (98,413 acres), estimate 50% will need to be reworked. Complete crew experiment - Survey of Ribes nigrum and elimination of these bushes - Nursery sanitation measures applied to all nurseries growing white pine - Complete inspection of all plantations in state.

NEW YORK

Acreage of pine: Pure, 642,780 acres; mixed, 465,022 acres; pine restocking in types other than pine, 250,834 acres; total, 1,358,636 acres.

Present policy: State land projects and cooperation with individuals on private lands, state furnishing such cooperators with foremen.

Cooperation:

Period	No. Individuals	Individual Expenditures
1918-1921	41	$18,658.34
1922-1927	1720	72,937.57
Totals	1761	$91,595.91

Ribes eradication:

Period	Acreage	Ribes Pulled (Wild & Cult.)	Total Cost	Cost Per Acre
1918-1921	68,062	4,525,581	$170,343.75	$2.50
1922-1927	187,652	6,113,382	237,660.30	1.27
Totals	255,714	10,638,963	$408,004.05	$1.60

Cultivated Ribes destroyed: 1918-1921, 13,736 bushes; 1922-1927, 8315 bushes; total for period 1918-1927, 22,051 bushes.

Compensation - 1922-1927: Number persons paid compensation - 121; total number bushes paid for - 1468; total amount paid in reimbursement - $505.11.

Ribes re-eradication: None

State forests: Practically all the control work prior to 1922 was on state lands; however, since then the amount of work on private lands has exceeded the state projects. Initial control work has been completed on most of state pine areas worth protecting, except on Tongue Mountain tract.

Plantations: The New York State nurseries have distributed, up to and including 1927, 43,945,188 white pines for planting in the state. Many of these plantings have been protected, especially in the agents' districts, but in other parts of the state no such control work has been done.

Nursery sanitation: New York has over 300 nurseries growing white pine; however, most of these trees are confined to a few nurseries. A nursery sanitation campaign, with two men in the field, has just been started in the nursery districts.

Ribes nigrum: New York has outlawed these Ribes, but no check up has been made to make sure these bushes are not being grown.

Blister rust surveys: Strip line infection survey made by Brooks in 1920 - The pines on rod wide strips, totalling 28.4 miles in length, were examined, a total of 12,297 pines were inspected, and 5.1 percent found diseased; 16 plots, totalling 15.1 acres, were laid out adjacent to the strips. 17.5% of the 14,455 pines in these plots were diseased. In 1922, Fivaz made a similar strip study near Warrensburg of 12.1 miles in length and found 21% of the 8139 pines infected. During 1920 and 1921, Amadon made survey of white pine in parts of Essex and Warren Counties - the pine areas have been designated on U.S.G.S. maps, but no summary has been made of acreage or contents of the stands - maps used as basis for control work. During 1927, McIntyre had rough maps made of the pine and hardwoods types in several counties for use in eradication work. Epidemiology survey by agents and Corliss, during 1926 and 1927, of white pine and other forest types, Ribes and infection conditions - maps and summaries being prepared at Boston Office.

Infection: General and abundant in commercial white pine range of the state, spot infections in other parts, caused principally by infected stock or Ribes nigrum. In generally infected region, on a basis of town units, the percent of diseased pine ranges from 1-20 percent of the total amount of pine. Also, see strip line data under "Surveys".

Investigations: Selective Ribes eradication experiment at North Hudson - not completed - no report. Effectiveness of control study made by Fivaz - preliminary report only. Blister rust damage studies by York and Snell - published in Journal of Forestry. Ribes ecology studies by Littlefield and Fivaz - preliminary report given at annual conference 1927. Damage study of pine plantation at Schroon River by Ford - preliminary report prepared by Ford.

Office: Records and maps in good shape.

Future work: Complete initial Ribes eradication on state and private lands, 1,004,664 acres (basis: pine acreage (pure and mixed) plus one-fourth additional acreage for protection strips - area cleared of Ribes.) In addition, there are 250,834 acres of other types restocking to pine that may need protection - Re-examination of 255,714 acres of initial control work, estimate 50% will need to be reworked - Elimination of Ribes nigrum throughout state - Adequate sanitation measures surrounding all nurseries growing white pine - Studies to determine regrowth of Ribes and effectiveness of control - Continuation of Ribes ecology study - Inspection of pine plantations and application of control measures.

NEW JERSEY

Acreage of white pine:

From a forestry viewpoint, very little white pine in the state; however, it has been planted extensively as an ornamental, especially in the Red Bank and Morristown sections. In Passaic County, a light stocking (less than 20 percent) of native white pine is found in hardwood types in the Greenwood Lake section, on Bearfoot Mountain, and near West Milford. At the last place, there is almost a pure stand of white pine comprising several acres. Also in Sussex County, a light stocking of white pine exists on Waywayonda Mountain (from Vernon north to the state line), Pochuck Mountain, Sparta Mountain, Kittating Mountain, and around Cranberry Lake. It is most abundant in the township of Montague. In Warren County, there is also a light pine stocking along the Deleware between Columbia and Manunka Chunk.

Present policy:

Temporary cooperative scouts employed during summer months to determine pine, Ribes, and infection conditions.

Cooperation and Ribes eradication:

Many owners have destroyed their Ribes nigrum, also there is an unwritten agreement between the New Jersey nurseries not to sell these bushes. Wild Ribes are known to exist in the northern part of the state, particularly on Waywayonda Mountain and near West Milford, where Ribes rotundifolium and americanum have been found. The location of the wild Ribes in relation to valuable pine areas is such that the destruction of these bushes does not seem urgent.

State forests:

6 forests, comprising 18,954 acres, apparently contain little white pine of commercial importance.

Plantations:

About 10,000 acres have been planted; however, the white pine survey shows only an estimated total of 194,840 planted white pines, exclusive of 21,388 reported in nurseries. The largest white pine plantings are located in Glocester, Morris, Cumberland, Ocean, and Somerset Counties. Smaller white pine plantings are found in the Counties of Monmouth, Warren, Burlington, and Sussex. There is one state nursery of about ten acres in size - No information as to sanitation measures.

Ribes nigrum:

Survey of black currants made in Morris County, also in parts of Monmouth and Sussex; 102 plantations of black currants were found in Morris County, 19 in Monmouth, 10 in Sussex, 1 in Warren, and 1 in Passaic Counties. Black currants were found in but one nursery in the area scouted.

Investigations:

General scouting to locate pine, Ribes, and infection conducted during summer months by one or two cooperative scouts - state wide survey of forest types, by towns, made by Hirt during 1927 - this detailed data have not as yet been summarized.

Infection:

First found in New Jersey in 1911 on pines at the Newark Watershed near Charlotteburg. Since then, infection has been found somewhere in the state every year with exceptions of 1912, 1914, 1915, and 1923. Scouting in 1927, showed the disease more generally prevalent then ever before, being found on Ribes in 21 localities in seven counties. No pine infection has been reported since 1918.

Future work:

Application of adequate nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes - eradication of all Ribes within at least 900 feet of pine plantations and ornamental pine of value - additional scouting in northern section of the state to determine, in more detail, pine, Ribes, and infection conditions - adequate records and maps to show location of pine plantations, Ribes nigrum, native pine, infection, etc. - general educational work to keep public informed of the disease and its control.

PENNSYLVANIA

Pine acreage:

213 towns in 34 counties contain either pure or mixed pine (30% or above). There is also a considerable acreage of mixed growth containing less than 30 percent pine. Many other types are restocking to pine. No definite acreage figures are available until the Pennsylvania survey data are summarized.

Present policy:

Work limited to cooperative scouting for pine, Ribes, and infection during summer months by 2 or 3 men.

Cooperation and Ribes eradication:

No known control work performed in state - wild Ribes apparently generally distributed, especially in pastures and along fence rows. Sample plots in the Counties of Wyoming and Susquehanna show the gooseberries in the pasture type averaged 10.6 bushes per acre, in the woodland type 5 per acre, along fence rows 4 per 100 yards, and in the swamps 0.6 per acre. Gooseberries are found chiefly in the pastures and along fence rows, while the skunk currants are usually located in the woodland types.

Public forests:

In 1926, the 21 state forests totalled 1,131,783 acres. There are also two national forests, the Allegheny and the Tobyhanna - no information as to amount of pine.

Plantations:

6 state nurseries - capacity several million trees - Up to 1927, the state nurseries had distributed about sixteen million white pines for planting purposes. Approximately 13,500 acres have been planted to white pines.

Nursery sanitation: - No data.

Ribes nigrum:

Cultivated Ribes survey made in Wayne County in 1925 - 279 black currants being found. General scouting and school campaign show Ribes nigrum planted in most sections of the state, but bushes apparently not numerous.

Blister rust surveys and infection:

The cultivated Ribes survey in Wayne County during 1925, resulted in the location of 2051 cultivated Ribes. Of these, 279 were black currants, 1496 prickly gooseberries, 250 cultivated gooseberries, and 26 ornamental Ribes - Sixty two gardens contained black currants - Blister rust was found at Calicoon on pines and black currants, at Rileysville on black currants, at Damascus on pines and wild Ribes, and at Laurella on black currants. The infection at Laurella is a new location, the rust being found previous years in the other places.

During 1926, scouting performed in four northern counties - rust found on Ribes nigrum (2 bushes in each case) in the counties of Monroe, Pike, Wyoming, and Lackawana. In Brooklyn, infected wild Ribes were located.

During 1927, a cooperative school survey to locate the rust was made in 57 counties - 14,000 packets (each containing instructions to the teacher, a sheet of information, colored illustrations, ten small envelopes for specimens, a return envelope, and a report form) were sent to each school outside Pittsburg and Philadelphia. In the 53 counties reporting; returns were received from 1761 schools. These schools reported that 13,061 gardens had been examined, and 253 of these schools sent in 465 envelopes containing specimens infected with blister rust. The rust findings are distributed over 37 counties, and the area so affected extends nearly to the Ohio border on the west, on the south to the Maryland line. Since the number of envelopes submitted was 7123, the percentage containing blister rust was 6.5%; similarly, the percentage of schools reporting rust was 14.7%.

General scouting recorded the presence of the rust in five additional counties (Bucks, Monroe, Luzerne, Columbia, and Clarion), all of these, except Monroe, are new counties for the rust. At Clarion, a stand of pine reproduction was found to be quite heavily infected with young cankers.

Future work:

Application of adequate nursery sanitation measures - complete survey of Ribes nigrum and eradication of such bushes, especially in pine counties - follow-up survey to determine exact status of pine, Ribes, and infection in those towns where Hirt's survey reported white pine acreages - detailed maps prepared showing location of native pine areas, also, where possible, location of plantations, infection, etc. - protection of all state and private pine plantations and stands of native pine, especially growth under 30 years of age, by eradication of nearby Ribes - general educational and service work to inform public regarding the disease and its control.

MICHIGAN

Pine acreage: No figures available. Most of the pine apparently located in eastern and northern portions of state. Survey of forest types to be completed during 1928.

Present policy: One permanent agent cooperatively employed to determine pine, Ribes, and infection conditions and to organize control projects.

Cooperation and Ribes Eradication: None.

Public forests: 78 state forests containing 333,000 acres; 2 National Forests comprising 127,000 acres - no information as to amount of pine in these tracts.

Plantations: Up to 1925, about 25,430 acres planted - no information as to how much of this was white pine.

Nursery sanitation: Yearly inspection made of pines and Ribes in nurseries - only one state nursery of 15 acres. Inspection, during 1927, showed need for nursery sanitation measures at several nurseries.

Ribes nigrum: Black currant law passed in 1928, prohibiting possession of Ribes nigrum in sixteen counties where infection has been found - no general survey or eradication of such bushes.

Blister rust surveys and infection:

General scouting for infection has been conducted for several summers; however, not until 1927 was the disease found to be general on Ribes nigrum in the southern peninsula - disease first found in 1917 on imported pines in Oakland County nursery - more infections found in Oakland County during 1918, 1919, and 1922 - infection located in Kent County in western part of state during 1922 and 1923 - no infection found since then until 1927. Most of infection primary and occurred on imported seedlings. During 1927, Ribes infections found in 56 locations in 18 counties - scouting of about 7,000 acres of pine in St. Clair, Sanilac, Macomb, Clare and Midland Counties did not reveal any infection. Cowdrey completed survey of forest types in 27 counties in western part of lower peninsula - this work will be completed for entire state during 1928.

Future work: Application of adequate nursery sanitation measures - completion of epidemiology survey during 1928 to determine location and abundance of pine, Ribes, and infection - outlawing of Ribes nigrum and complete eradication of these bushes - conducting of a school campaign to locate Ribes infection - development of a control program - follow-up survey to inspect and map pine areas, as determined by epidemiology study - where advisable, protection of pine areas by Ribes eradication.

WISCONSIN

Acreage of pine: Pure, 11,127 acres; mixed, 109,756 acres; total 120,888 acres. There is also a considerable acreage of mixed growth containing white pine stocking of less than 20 percent. Very little restocking of white pine is occurring in any of the types, due in part to grazing, fire, and settlement. Of the total pure pine, 8092 acres are in the three counties of Shawano, Oneida, and Vilas. Native pine (pure and mixed) is found in 33 counties, pure stands being present in only nine. Nineteen additional counties have pine plantations only.

Present policy: Due to lack of funds, no state cooperation has been given in eradication work since 1923. Prior to that time, the state conducted the control work, eradicating infected pines and nearby Ribes, with some assistance from pine owners, who in many cases aided in pulling the bushes on their properties.

Cooperation: During 1920-1923, 112 individuals expended $2855.24. This amount includes some money expended by the Indian Service and Conservation Commission. In 1926, the Indian Service had its men eradicate the Ribes from 250 acres, and during 1927, one owner re-eradicated Ribes on his property of 50 acres.

Ribes eradication: 1918-1923, 28,299 acres eradicated of 1,997,838 wild Ribes at a cost of $17,139.98, or 60.6 cents per acre. Ribes averaged 70.6 bushes per acre. Only 19 cultivated bushes were destroyed. No control work was performed in 1924 and 1925. In 1926, no control work was done except by the Indian Service at Keshina, where 150 acres were reworked and an additional 100 acres covered for the first time. During 1927, the state cleared 250 acres of 42,226 wild Ribes at a wage cost of $658.60. A pine owner also re-examined 50 acres of his property for Ribes.

Public forests: Completed control work at Interstate Park, also most of the pine lands of the Indian Reservation near Keshina - no other data available. The state owns 173,000 acres of state forests, which apparently do not contain much white pine.

Plantations: Most of the planting has been done during the last five years - 1262 acres have been planted to white pine in 33 counties. No information as to protection of these plantations.

Nursery sanitation: In 1925, state had one small nursery; however, state output of seedlings has been greatly increased since then. The pines and Ribes in private nurseries have been inspected annually, but no infection has been found - no information as to other nursery sanitation measures.

Ribes nigrum: No black currant law or systematic effort to eradicate such Ribes.

Blister rust surveys and investigations:

For several years, Ninman with some assistance, has done considerable scouting throughout the state, and has roughly marked on maps the location of many pine areas and infection. During 1922-1927, experiments in Ribes eradication and ecology have been conducted at Eau Galle. The field data have been summarized and a preliminary report submitted. During 1927, Ninman secured data on forest types for the entire state. This information has been summarized at the Boston Office, and will be used in connection with the epidemiology study.

Infection: First discovered on pine in Polk County in 1916 - has been found since on scattered areas in the counties of St. Croix, Polk, Barron, Dunn, Pepin, Washburn, Rusk, and Eau Claire in the west central part of the state, and in Marathon and Shawano Counties in the east central portion. As the infected pines have been cut when found, no large pine infection centers are known to exist; however, it is expected that spot infections will be located from time to time.

Future work: Insure clean planting stock, by adequate nursery sanitation - protection of all pine plantations - eradication of all Ribes nigrum - complete initial eradication of Ribes, to protect native stands at least 132,885 acres - (Basis: pine acreage (pure and mixed) plus additional 1/3 acreage for protection strips minus acreage cleared of Ribes.) - re-examination of present control areas, containing 28,299 acres, estimate all this acreage will need to be reworked because of abundance of Ribes found originally - complete Eau Galle experiment and prepare final report - extensive scouting to determine present status of disease - preparation of a detailed state map showing location of pine areas, infections, etc.

MINNESOTA

Pine acreage: Based on the 1927 survey figures for all the important pine counties, except two - Pure pine, 50,725 acres; mixed pine (20-79%), 225,743 acres; pine restocking in types other than pine, 194,041 acres; total pine acreage, 470,509 acres. Complete returns will probably add 100,000 acres more to this total. There is also a considerable acreage of mixed growth, which contains less than 20 percent of pine stocking. The natural pine range in Minnesota is north of a line drawn from southern Washington County to the southeastern corner of Kittson County in the extreme northwestern part of the state.

Present policy: Blister rust work limited almost entirely to nursery inspection and to summer scouting for pine and infection by one or two temporary employees.

Cooperation: During 1921 and 1922, eleven individuals expended $154.30 on control work.

Ribes eradication: During 1918 to 1923, inclusive, 4981 acres were cleared of 407,278 wild Ribes at a cost of $14,180.17, or $2.85 per acre - Ribes averaged 81.8 bushes per acre. Only 118 cultivated bushes have been eradicated. No control work performed since 1923.

Public forests: The National Forests in Minnesota during 1925 comprised 1,047,941 acres, while State Forests had an acreage of 350,000 acres. Considerable white pine, mostly of merchantable size, is known to exist on the National Forests. No protection work has been done on these public forests. During 1917 to 1920, Ribes were eradicated from the Interstate Park.

Plantations: Up to 1925, about 2,000 acres had been reforested; but at this time, no figures are available as to the amount of white pine planted.

Nursery sanitation: Yearly inspection made of Ribes and pines in state and private nurseries - no information as to other protective measures.

Ribes nigrum: No action taken regarding eradication of this species - many patches inspected for infection.

Blister rust investigations:

21 permanent pine infection plots established, by state men, in older infection areas to study development of disease. An examination of 2211 pines in these plots during 1927 showed 9.3 percent were infected. Also, 21 Ribes regrowth plots - summary of conditions in these plots given in state annual report for 1927. Control measures by local eradication of Ribes in 1918 and 1919 were effective in controlling pine infections. The Ribes regrowth, however, was such as to warrant re-eradication five years after the original work. Wild Ribes are widely distributed wherever pine occurs. Ribes cynosbati is most prevalent and very susceptible to the rust. Considerable scouting for pine and

infection has been performed by Lindgren; this work is also reported in 1927 annual report. During 1927, Hirt completed survey of forest types in about 2/3 of the state, as a basis for the epidemiology study.

Infection: Blister rust found in eighteen counties; occurring on nursery stock in different places in the southern part of state almost to Iowa line, as far south as Olmsted and Martin Counties. On native pine and Ribes, the farthest south infections are found in Washington County. The rust is present in practically every county along the Wisconsin line from Washington County north to Lake County, north of Lake Superior. The farthest west infection is Morrison County, and the farthest north is northern St. Louis County (at Tower). Pine infection (on native pines) has been found as far north as Two Harbors in Lake County, as far west as Crow Wing County, and as far south as Washington County. In older infection areas, such as Rush Lake and Stanchfield, a large portion of the reproduction and the branches of older trees are being killed. The rust is spreading north and west, not at an alarming rate, but surely and steadily.

Future work: Application of adequate nursery sanitation measures to insure clean planting stock - outlawing of Ribes nigrum, and complete eradication of these bushes, especially in natural pine range - continuation of scouting to determine status of rust - completion of epidemiology study - conduct follow-up detailed survey to determine where control work is needed - application of control measures, especially in stands of young pine growth and re-eradication of early control areas, 4981 acres - continuation of studies on pine infection and Ribes regrowth - educational and service activities conducted in cooperation with forestry officials and Extension Service - appointment of permanent state blister rust control leader.

SUMMARY OF BLISTER RUST CONTROL ACCOMPLISHMENTS IN NEW ENGLAND AND NEW YORK DURING THE PERIOD 1922 to 1927, INCLUSIVE.

The results accomplished in blister rust control since the present program was initiated in June, 1922 have proved its practicability. During the period 1922-1927, a total of 4,920,670 acres in New England and New York have been cleared of 46,757,904 wild and cultivated Ribes at a per acre cost of 17.6 cents. In the application of control measures, 20,892 individuals have expended $246,114.14, and $225,737.58 has been spent from 708 town appropriations made in four states. Several thousand additional persons have cooperated by giving general support, or allowing their cultivated bushes to be destroyed without compensation. The following four tables give a general yearly summary of the cooperative work during the period 1922-1927.

SUMMARY OF EDUCATIONAL AND SERVICE WORK PERFORMED BY BLISTER RUST CONTROL AGENTS IN THE NORTHEASTERN STATES DURING THE PERIOD JULY 1, 1922 to DECEMBER 31, 1927.

EDUCATION

	July-Dec. 1922	1923	1924	1925	1926	1927	Totals
Meetings addressed	251	722	707	627	490	467	3,264
Attendance	29,163	32,649	47,071	45,522	33,082	34,690	222,177
Field Dem. meetings	335	834	792	418	210	148	2,737
Attendance	1732	6442	4050	2912	5018	2646	22,800
Exhibits placed	374	582	647	680	624	647	3,554
Publications distributed	35,067	51,308	55,696	68,818	76,697	88,840	376,426
Items published	313 (Est)	1203	1269	1294	1202	1219	6,500
Posters & signs placed	2500	6499	13,868*	8894	8056	7041	46,858

SERVICE

Initial interviews	6227	14,724	15,984	13,819	12,153	13,120	76,027
Follow-up calls	1924	5555	6804	7380	7309	8228	37,200
Individuals instructed in Disease and Damage	1027	2688	3922	6833	7206	7761	29,437
Individuals instructed in Control Methods	513	1586	2276	4336	4353	5341	18,405

*Includes 4315 posters mailed by the Boston Office to post offices and railroad stations in the agent districts of New England.

TOWN AND INDIVIDUAL COOPERATION IN RIBES ERADICATION WORK 1922-1927, INCLUSIVE.

Year	TOWN COOPERATION			INDIVIDUAL COOPERATION		
	No. Towns Appropriating	Amount Appropriated	Amount Expended	No. Individuals Cooperating: Cult. Ribes Erad. Only	No. Individuals Cooperating: Wild & Cult. Ribes Erad.	Amount Spent by Individuals
1922	59	$19,827.86	$17,700.33	-	971	$26,512.49
1923	122	36,380.00	40,140.11*1	698	1968	40,969.47
1924	147	47,352.81	48,022.14*1	1714	3059	45,698.43
1925	132	40,989.90	40.351.31	958	3069	39,720.06
1926	123*3	40,425.00*3	41,223.95*1	741	3283	44,172.88*2
1927	125	38,133.40	38,299.74*1	894	3537	49,040.81
TOTALS	708	$223,108.97	$225,737.58	5005	15,887	$246,114.14

*1-Balance of town funds from previous years were also expended during this year.

*2-Individuals in Vermont spent an additional $82.00 for cultivated Ribes compensation.

*3-Balances from 1925 appropriations available in five additional towns in Maine, which did not appropriate in 1926.

SUMMARY OF RIBES ERADICATION IN NORTHEASTERN STATES 1922-1927, INCLUSIVE.

Year	No. Acres Eradicated	Ribes Pulled: Wild	Ribes Pulled: Cult.	Total Cost	Per Acre Values: Ribes	Per Acre Values: Cost
1922	476,621	4,849,812	16,061	$96,818.37	10.7	.200
1923	892,639	7,969,917	55,074	160,883.87	9.0	.181
1924	1,008,042	9,466,271	73,858	169,175.52	9.4	.167
1925	834,428	7,296,670	59,458	138,491.86	8.7	.166
1926	814,439	8,838,000	51,471	148,382.91	10.8	.182
1927	894,501	8,032,574	48,738	153,302.41	8.9	.171
TOTALS	4,920,670	46,453,244	304,660	$867,054.94	9.44	.176

(Summary does not include work on White Mountain National Forest)

SUMMARY OF YEARLY STATE COMPENSATION PAID FOR CULTIVATED RIBES DESTROYED IN THE NORTHEASTERN STATES DURING THE PERIOD 1922-1927, INCLUSIVE.

Year	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid in Reimbursement
1922	16,061	727	50	$289.49
1923	55,074	1,490	59	$574.37
1924	73,858	6,106	84	$1572.11
1925	59,458	1,310	46	506.91
1926	51,471	4,023	24	$1449.60*
1927	48,738	3,436	126	$1333.36
TOTALS	304,660	17,092	389	$5725.84

*In addition, during 1926, individual cooperators in Vermont paid $82.00 compensation to 9 owners of cultivated Ribes for the removal of 164 bushes.

In Massachusetts, during 1927, 46 persons claimed $1044.65 for the destruction of 2511 bushes. These claims will not be settled until the spring of 1928. However, this Massachusetts data is included in the above table.

GENERAL SUMMARY OF COOPERATIVE BLISTER RUST CONTROL ACTIVITIES IN NEW ENGLAND AND NEW YORK DURING 1927.

EDUCATION

	1927	% Increase or Decrease 1927 Over 1926.
Meetings addressed	467	-4.7%
Attendance	34,690	+4.8%
Field demonstration meetings	148	-29.5%
Attendance	2,646	-47.2%
Exhibits placed	647	+3.7%
Publications distributed	88,840	+15.8%
News items published	1,219	+1.4%
Posters and signs placed	7,041	-12.6%

SERVICE

Initial interviews	13,120	+7.9%
Follow-up calls	8,228	+12.6%
Individuals instructed in disease and damage	7,761	+7.7%
Individuals instructed in control methods	5,341	+22.7%

INDIVIDUAL COOPERATION

Number individuals cooperating in	(Wild & cult. Ribes eradication	3,537	+7.7%
	(Cult. Ribes eradication only	894	+20.7%
	(General support only	8,008	+6.0%
Amount expended by individuals on control work		$49,040.81	+11.0%
Number of states in which individuals cooperated		6	Same

TOWN COOPERATION

Number cooperating towns	125	+1.6%
Number states in which towns cooperated	4	Same
Amount of town money appropriated	$38,133.40	-5.7%
Amount of town funds used	$38,299.74*	-7.1%

*Includes balances from 1926 town appropriations.

STATE COOPERATION

Number states cooperating	7	Same
Amount state (appropriation) funds used (all projects)	$120,566.14	+13.8%

RIBES ERADICATION

	1927	% Increase or Decrease 1927 Over 1926.
Acreage cleared of Ribes	894,501*	+9.8%
Acreage of re-eradication work (Included in acreage examined)	101,137	+110.7%
Ribes eradicated (Wild)	8,032,574	-9.0%
Ribes eradicated (Cultivated)	48,738	-5.3%
Ribes eradicated (Total)	8,081,312	-9.0%
Total cost (Ribes eradication)	$153,302.41	+3.3%
Cost per acre	17.1¢	-6.0%
Ribes per acre	8.9	-17.6%

*Does not include work on White Mountain National Forest.

RIBES COMPENSATION

Number persons compensated	126	+281.8%
Total bushes paid for	3436	-18.0%
Total cost of compensation	$1333.36	-12.9%

PERSONNEL

(Cooperative Control Work)

State Leaders (5) Assistant Leaders (2)	7	Same
Blister Rust Control Agents (permanent)	36	-14.3%
Blister Rust Control Agents (temporary)	19	-13.2%
State Supervisors or Eradication Assistants	8	+14.3%
State Checkers	4	-20.0%
Foremen	179	+12.6%
Scouts	33	-8.3%
State Laborers	282	-42.4%
Owners' Laborers	6436	+66.9%
Total Number Men Employed in Field Work (Regardless of length of time each worked)	7004	+51.4%

CLASSIFICATION OF FUNDS USED

State Appropriations	$120,566.14	+13.8%
Nursery Funds	3,213.41	+ 423.2%
Town Appropriations	38,299.74	-7.1%
Individual Funds	49,040.81	+10.8%
All Other State Funds	1,767.50	-12.8%
Federal $ For $ Money	132,460.90	+1.7%
Total Expenditures	$345,348.50	+6.5%

General Comments:

The 1927 control work was successful in spite of a late spring, excessive rains during the summer, and early defoliation of the bushes, caused principally by heavy infection. Compared with the previous year, a substantial increase of 9.7 percent occurred in acreage cleared of Ribes during 1927. This increase is due entirely to large increased acreages worked in Massachusetts, New York, and New Hampshire; decreases were noted in the other states. In spite of a greater acreage during 1927, less Ribes were pulled, apparently because 11.3 percent of the acreage was re-eradicated area. In all states, the season's activities were based on definite written plans and budgets prepared cooperatively by the state leaders, state cooperators and federal supervisor, during the latter's spring and fall trips to the cooperating states. A special effort was made to improve the organization of the work by changes in personnel and assignments. Also, the spring, fall and winter activities of the field men were made more productive by assigning certain men special projects.

Many changes occurred in the agent personnel and assignments during 1927, especially in New York where a complete re-organization was made. Amadon was appointed as a state forester, in charge of reforestation, and York's blister rust activities were limited chiefly to investigational work. McIntyre was placed in charge of all pest control and assigned to directly supervise the agents' duties. Kennedy was appointed as assistant to McIntyre, while Stevens was transferred to state educational work. A special improvement in organization developed in Nichols' district, which was divided into three independent units, each in charge of an agent, instead of having Nichols in charge of this entire section. Pratt was assigned to Franklin County, Holcomb to Clinton County, while Nichols' work was limited to Essex County. Late in the season, Baker was transferred from Saratoga County and placed in charge of nursery sanitation and black currant eradication work. An eradication assistant will be assigned to complete the unfinished control work in Saratoga County. Agent Strait will also assist on nursery sanitation work in his district along the lower Hudson Valley. Hamilton resigned during the spring and Bowlby was transferred during the fall from Washington to Lewis County to take Hamilton's place. The unfinished control work in Washington County will be completed by a state eradication assistant. Near the end of the year, Williams resigned to accept a position as a district ranger in the same territory he occupied as agent. During the summer months, Williams, on state pay, will complete any needed control work in his district.

In New Hampshire, the supervisory costs were greatly reduced by not employing an assistant state leader to take Corliss' place when he was transferred to federal quarantine work March first. During April, Hurford was appointed as agent in Rhode Island to succeed Anderson, who resigned December 31, 1926. In Maine, agent Tarbox resigned soon after being transferred to Lincoln County.

White was appointed in his place. Agent Miles of Windham County, Connecticut, resigned December 31st. In place of employing a permanent agent in this district, four temporary scouts will be used during the eradication season to do Ribes scouting and service work. Expenses were reduced in Massachusetts by not employing any temporary assistant agents during the winter months. Also, during the spring and fall shipment of nursery stock, the Massachusetts agents, Wheeler and McNerney, assisted on quarantine inspection. Agents Doore and Clave spent the fall and winter months assisting at the state and federal offices in Boston.

State appropriations were the same in all states during 1927, except New York, Maine and New Hampshire. In New York and Maine, there were increases of $5000. and $2500 respectively, while in New Hampshire there was a decrease of about $14,000 in the bi-annual appropriation. However, the money available in New Hampshire appears adequate to meet the situation.

Educational material continued to be effectively used, but few new features were produced. The most unique and successful new feature was the school campaign to locate diseased black currants in Pennsylvania. On the whole, the Blister Rust News made a creditable showing and was well received. The associate editor idea appeared to work successfully. Of special importance was the commendable increase in contacts with commercial interests, professional men and schools.

During the year, agent conferences were held in all states, and several of these meetings were attended by the federal supervisor. The attendance of the agents at the annual conference in 1926 was so beneficial, that this procedure was repeated in 1927 with equally marked success.

All checking of eradication work was performed by the state men. New Hampshire had four inspectors, Connecticut one, and New York five eradication assistants. In the other states, the checking was performed by the agents or the assistant agents. A commendable increase in the amount of checking was noted in Maine; however, in both Maine and Massachusetts it would be well to do even more checking, as most of the control areas are eliminated from intensive examination by scouting methods. Ribes eradication on state forests was conducted in all states where such work was needed. In Massachusetts and New York, praiseworthy progress was made in nursery sanitation work. Better organization and training of the eradication forces was noted in all states. As usual, New York has a special training camp for foremen. The records and maps of eradication work were in better shape than in previous years.

Only two new field studies were made during 1927, one by Perry and Clave on the spread of infection from skunk currants; and the other, by Merrill and the Vermont agents on Ribes regrowth on control areas. Reports of both studies were presented at the annual conference. Fivaz continued his Ribes ecology studies and also gave a preliminary report at the annual conference.

The cartographical survey was conducted in New Jersey, New York, Pennsylvania, Michigan, Wisconsin and Minnesota, during 1927. The following statement summarizes the status of the field and office work on this project assigned to the Boston Office:

Relation of Distribution and Abundance of Native White Pine to Spread of Rust.

B. Description of Data (Records)

1. Field data secured from all towns in New England, New York, New Jersey, Pennsylvania, and Wisconsin; also, for towns in 27 counties of Michigan, and 40 counties in Minnesota. (Data recorded on BR36 forms.)

C. Summarization of Records

1. Tabular Data

(a) Data tabulated by acreage of forest types in each town, county, and state. (New England States, New York, Wisconsin, 27 counties in Michigan, and for all of Hirt's 1927 work in Minnesota.)

(b) Data secured for New York white pine plantations by towns and number of pines planted. (These records checked at Albany Office. Acreage of pine plantations added to forest area in each town. Total summary of New York pine plantations prepared and copies furnished Albany and Washington Offices.)

(c) Special summaries and charts of forest types, especially white pine, made for New England and New York. (Copies of these sent to Detwiler and Howard.)

(d) Field sheets for Pennsylvania and New Jersey checked, and part of Pennsylvania acreage planimetered.

2. Maps

(a) Map of New England and New York showing, by towns, the percent of land area in forest growth, the two major forest types, and percent of forest area in pure pine (merchantable and reproduction) and mixed pine types.

(b) Map of New England and New York showing acreage of pine in each town. (Acreages grouped into ten classes, shown by colors.)

(c) Same as (b), except acreages grouped into four classes instead of ten - (only Maine and New Hampshire completed.)

(d) Map of New England and New York showing percent of land area of each town in pine. (Percents grouped into four classes and shown by colors.)

(e) Zone map showing pine conditions in New England and New York, based on percent of land area in pine growth in each town.

Relation of Distribution and Abundance of Wild Ribes to Spread of Rust.

B. Summarization of Data.

1. Tabulation of data by towns and totals for each state.

2 & 3. Map of New England and New York showing, by towns, Ribes conditions and percent of pine area protected. (1917 to 1926, inclusive.)

4. Map of New England and New York showing range of wild Ribes, by species. (Completed as far as data available - must be checked in field.)

5. Eradication data for 1927 summarized by towns, so as to prepare map, similar to #3, but based on 1917 to 1927 inclusive.

Relation of Distribution and Abundance of Pine Infection to Other Factors Influencing The Spread of The Rust.

B. Description of Data.

(b) Map prepared of New England and New York showing percent of pine infection in each town; also general zone lines.

In Vermont, the survey on production, value and use of white pine and other woods was completed for the entire state, the data summarized, and a report prepared on this study. The federal supervisor re-examined the pines with trunk cankers at the Waterford area and prepared a report of the entire damage study, based on 1927 observations. Ninman also continued his Eau Galle study and submitted a report to the Washington Office. No report has been received of the investigational work done by Dr. York and his assistants, other than that given in the annual conference report.

Many new infection areas were reported from Maine, New Hampshire and Massachusetts. In Maine particularly, the disease is spreading rapidly in the unprotected areas east of the Kennebec River. In Massachusetts, most of the new areas of infection were not of recent origin, but simply had not been previously located.

The following parts of the report give a detailed summary and analysis of each phase of the control program.

SUMMARY AND ANALYSIS OF COOPERATIVE CONTROL WORK, BY STATES, DURING 1927.

EDUCATIONAL ACTIVITIES OF PERMANENT AGENTS - 1927.

State	Meetings Addressed		Field Dem. Meetings		Exhibits Placed		Publications Distributed		Items Published		Posters Placed	
	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent
Maine	56	14.0	12	3.0	104	26.0	5,256	1314.0	53	13.2	880	220.0
N.H.	179	22.4	47	5.9	203	25.4	32,028	4003.5	463	57.9	2300	287.5
Vt.	49	16.3	54	18.0	74	24.7	3,395	1131.7	41	13.7	997	323.3
Mass.	39	6.8	16	2.8	79	13.8	24,255	4255.3	247	43.3	698	122.4
R.I.	5	5.0	0	-	5	5.0	2,659	2659.0	12	12.0	20	20.0
Conn.	10	5.0	1	0.5	19	9.5	849	424.5	156	78.0	122	61.0
N.Y.	129	14.9	5	0.6	38	4.4	18,098	2122.7	246	28.9	240	28.2
Totals	467	14.5	135	4.2	522	16.3	86,540	2702.7	1218	38.0	5257	164.3

In addition to the above educational work performed by the permanent agents, 19 temporary men, employed in Maine, during the eradication season, held 13 field demonstration meetings attended by 254 individuals, placed 125 window or fair displays, distributed 2300 publications, published one news item, and put up 1784 posters and signs. Although the educational work performed by these temporary men was only a small proportion of the total amount of such features; yet in Maine, they held 52% of the field demonstration meetings, placed 54.6% of the exhibits, distributed 30.4% of the publications, and put up 66.9% of the posters and signs.

In Massachusetts, Agent Brockway published 203, or 82.2%, of the total news items in that state; while in Connecticut, Agent Clark published 151, or 96.8% of the news items. These two agents were responsible for 29% of all news items reported in the Northeastern States during 1927.

SERVICE ACTIVITIES OF PERMANENT AGENTS - 1927.

State	No. Initial Interviews		No. Follow-up Calls		No. Individuals Instructed in			
					Control Methods		Disease	
	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent	Total	Ave. Per Agent
Maine	1,198	299.5	586	146.5	361	90.2	649	162.2
N. H.	2,963	370.4	2685	335.6	615	76.9	1866	233.2
Vt.	1,093	364.3	870	290.0	563	187.7	863	287.7
Mass.	2,993	525.1	1550	271.9	1301	228.2	945	165.8
R.I.	575	575.0	21	21.0	1	1.0	179	179.0
Conn.	253	126.5	341	170.5	96	48.0	152	76.0
N.Y.	2,051	241.3	1909	223.6	1555	182.9	2080	244.7
Totals	11,126	347.7	7962	248.6	4492	140.4	6734	210.4

In addition to the above service items, 19 temporary agents in Maine had 1994 initial interviews and 266 follow-up calls, instructed 1027 persons in the disease, and demonstrated control methods to 849 individuals. In Maine, the temporary agents held 62.4% of the total initial interviews in that state, and 31.2% of the follow-up calls, instructed 61.3% of the total number of individuals in the disease and 70.2% of the persons in control methods.

COOPERATIVE RIBES ERADICATION - 1927.

State	No. Acres Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Maine	261,481	2,601,639	10,225	$22,513.71	$.086	9.9
N.H.	225,793	2,660,816	2,510	40,970.11	.182	11.8
Vt.	19,405	280,781	314	8,233.95	.424	14.4
Mass.	294,228	903,588	31,753	25,726.62	.087	3.07
R.I.	9,735	22,279	521	1,700.86	.175	2.3
Conn.	20,904	152,825	1,208	8,633.20	.413	7.3
N.Y.	62,955	1,410,646	2,207	45,523.96	.723	22.4
Totals	894,501	8,032,574	48,738	153,302.41	.171	8.9

This summary of Ribes eradication includes all control work performed in the Northeastern States, except that on the White Mountain National Forest. Both initial and re-eradication work are included in this table and in the following tables based on the four classes of Ribes eradication. The er-eradication work is discussed separately on pages 54-56.

Comparison, by states, of acreage eradicated of Ribes and per acre costs in Northeastern States during 1926 and 1927:

State	Acreage Eradicated		Percent + or - in Acreage eradicated over 1926	Cost Per Acre		Increase or Decrease in Per Acre Cost 1927 Over 1926	Increase or Decrease Ribes Per Acre 1927 Over 1926
	1927	1926		1927	1926		
Maine	261,481	304,437	-14.1%	$.086	$.070	+.016	-0.3
N.H.	225,793	209,585	+7.7%	.182	.217	-.035	-3.0
Vt.	19,405	22,650	-14.3%	.424	.453	-.029	+3.0
Mass.	294,228	189,230	+55.5%	.087	.144	-.057	-2.69
R.I.	9,735	28,207	-65.8%	.175	.068	+.107	+1.67
Conn.	20,904	22,257	-6.1%	.413	.227	+.186	-0.9
N.Y.	62,955	38,073	+65.4%	.723	.975	-.252	-5.9
Totals	894,501	814,439	+9.8%	.171	.182	-.011	-1.9

The 9.8% increase in acreage during 1927 over the preceding year was due to commendable increases in Massachusetts and New York of 104,998 acres and 24,882 acres, respectively. The increase of 16,208 acres in New Hampshire was also noteworthy. The large decrease in acreage worked in Rhode Island during 1927 was primarily due to the work being curtailed July 30,1927 on account of a shortage of state funds.

DETAILED SUMMARY AND ANALYSIS BY STATES OF RIBES ERADICATION WORK IN THE NORTHEASTERN STATES DURING 1926, BASED ON THE FOUR CLASSES OF CONTROL WORK.

I. INDIVIDUAL COOPERATION IN RIBES ERADICATION DURING 1927:

State	No. Cooperators		% of Total No. Cooperators (Wild Ribes Eradication) in Northeastern States Obtained in Each State.	Total Cost to Individuals	% of Total Cost to Individuals in Northeastern States Shared by Cooperators in Each State
	Wild & Cult. Ribes Erad.	Cult. Ribes Erad. Only			
Maine	1234	138	34.9	$9,324.06	19.0
N.H.	45	-	1.3	3,722.34	7.6
Vt.	118	15	3.3	7,106.05	14.5
Mass.	1379	678	39.0	8,459.42	17.3
Conn.	47	3	1.3	1,470.39*	3.0
N.Y.	714	60	20.2	18,958.55	38.6
TOTALS	3537	894	100.0	$49,040.81	100.0

*In addition, $500. was subscribed by individuals in one Connecticut town. In this report, these funds are classified as town money, rather than individual cooperation.

The individual cooperative work was conducted in one of two ways- without direct state supervision or with direct state supervision. This work is, therefore, summarized on this basis.

A. RESULTS OF INDIVIDUAL COOPERATION IN RIBES ERADICATION WITHOUT DIRECT STATE SUPERVISION.

State		N.H.	Vt.	Mass.	Conn.	Total
No. Coop. Who Erad.	Cult. Ribes only	-	6	287	-	293
	Wild & Cult. Ribes	2	11	88	8	109
	Total	2	17	375	8	402
Acres examined		350	565	6,095	357	7,367
Wild Ribes pulled		31,145	4160	12,238	123	47,666
Cult. Ribes pulled		-	41	3,429	5	3,475
No. Men employed		(Est.) 5	20	869	14	908
Total cost		$481.90	$206.05	$1120.53	$43.50	$1851.98
Cost per acre		$1.377	$0.365	$0.184	$0.122	$0.251

The acreage worked on this basis represents only 0.8% of the total area cleared of Ribes in the Northeastern States during 1927, and most of this kind of work was performed in Massachusetts.

The percent of increase or decrease in amount of individual cooperation, without supervision, during 1927 over 1926 is as follows:

Number cooperators eradicating wild and cultivated Ribes.....-38.2%

Number cooperators eradicating cultivated Ribes only..... -7.9%

Number acres eradicated of Ribes.....+27.9%

Number wild Ribes pulled.....-67.6%

Number cultivated Ribes pulled.....-29.5%

Number men employed..... .....-36.3%

Total cost..... .....-19.8%

Per acre cost.....-37.2%

B. RESULTS OF INDIVIDUAL COOPERATION, WITH DIRECT STATE SUPERVISION, IN RIBES ERADICATION WORK IN THE NORTHEASTERN STATES DURING 1927.

State		Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
Coop. Erad.	Cult. Ribes Only	138	0	9	391	3	60	601
	Wild and Cult. Ribes	1234	43	107	1291	39	714	3428
Acreage examined		33,497	11,710	18,490	155,148	7368	58,031	284,244
WILD Ribes pulled		2,569,464	241,302	276,045	595,285	75,123	1,188,603	4,945,822
CULT. Ribes pulled		10,081	91	273	16,997	942	2207	30,591
Cost	State	-	$846.03	$891.44	$8252.19	$1639.12	$16,870.43	$28,499.21
	Towns	$8319.01	-	56.40	-	-	-	8,375.41
	Individuals	$9324.06	3240.44	6900.00	7338.89	1397.14	18,958.55	47,159.08
	TOTAL	$17,643.07	$4086.47	$7847.84	$15,591.08	$3036.26	$35,828.98	$84,033.70
Cost per acre		$.527	$.349	$.424	$.105	$.412	$.617	$.295
Ribes per acre		76.7	20.6	14.9	3.8	10.2	20.5	17.4

1. Massachusetts and Maine together had 73.3% of the total number of individual cooperators eradicating wild and cultivated Ribes with direct state supervision.

2. The acreage worked on this basis represents 31.8% of the total area cleared of Ribes in the Northeastern States during 1927.

3. The cooperators shared the total cost of this supervised work as follows: Individuals-56.1%, States-33.9%, and towns-10.0%.

4. The percent of increase or decrease in amount of individual cooperation (with supervision) during 1927 over 1926 is as follows:

Number cooperators eradicating cultivated Ribes only.....+42.1%

Number cooperators eradicating wild and cultivated Ribes.....+16.2%

Number acres eradicated..... .....+20.5%

Number wild Ribes pulled..... ....- 7.3%

Number cultivated Ribes pulled..... -1.8%

Cost (States.....+14.4%
(
(Towns.....+24.1%
(
(Individuals.....+12.6%
(
(Total.....+13.9%

Cost per acre..... -4.8%

SUMMARY OF ALL INDIVIDUAL COOPERATION, WITH AND WITHOUT DIRECT STATE SUPERVISION, IN RIBES ERADICATION WORK IN THE NORTHEASTERN STATES DURING 1927.

State		Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
Coop. Erad.	Cult. Ribes Only	138	-	15	678	3	60	894
	Wild and Cult. Ribes	1234	45	118	1,379	47	714	3,537
Acreage examined		33,497	12,060	19,055	161,243	7725	58,031	291,611
WILD Ribes pulled		2,569,464	272,447	280,205	607,523	75,246	1,188,603	4,993,488
CULT. Ribes pulled		10,081	91	314	20,426	947	2,207	34,066
Cost	State	-	$846.03	$891.44	$8252.19	$1639.12	$16,870.43	$28,499.21
	Towns	$8319.01	-	$56.40	-	-	-	$8,375.41
	Individuals	$9324.06	$3722.34	$7106.05	$8459.42	$1440.64	$18,958.55	$49,011.06
	TOTAL	$17,643.07	$4568.37	$8053.89	16,711.61	$3079.76	$35,828.98	$85,885.68
Cost per acre		$.527	$.379	$.423	$.104	$.40	$.617	$.295
Ribes per acre		76.7	22.6	14.7	3.7	9.8	20.5	17.0

1. Maine and Massachusetts together had 73.8% of the total number of individuals eradicating wild Ribes in the Northeastern States. Of the total acreage worked in cooperation with individuals, 55.3% was in Massachusetts. However, private owners in New York expended 38.7% of total amount spent by individual cooperators.

2. The acreage worked in cooperation with individuals, with and without direct state supervision, represents 32.6% of the total area cleared of Ribes in New England and New York during 1927.

3. The total cost of this work was shared in the following proportions: Individuals-57.1%, States-33.2%, and towns-9.7%. The percent of the total cost of such work in each state paid by individual cooperators in the respective states is as follows: Maine-52.8%; New Hampshire-81.4%; Vermont-88.2%; Massachusetts-50.6%; Connecticut-46.7%; and New York-52.9%.

4. The percent of increase or decrease in amount of all individual cooperation during 1927 over 1926 is as follows:

Number cooperators eradicating cultivated Ribes only	+20.7%
Number cooperators eradicating wild and cultivated Ribes	+7.7%
Number acres eradicated	+20.6%
Number wild Ribes pulled	-9.0%
Number cultivated Ribes pulled	-5.5%
Cost (States	+14.4%
Cost (Towns	+24.1%
Cost (Individuals	+10.9%
Cost (Total	+12.9%
Cost per acre	-6.3%
Ribes per acre	-25.1%

II. TOWN COOPERATION IN RIBES ERADICATION DURING 1927.

State	No. Towns Approp.	% Total Number in Each State	Amount Appropriated	% Total Funds Approp. In Each State	Amount Town Funds Used	% Total Funds Used In Each State
Maine	43	34.4	$8,277.00	21.7	$8,319.01*	21.7
N.H.	77	61.6	$28,800.00	75.5	$28,924.33*	75.5
Vt.	3	2.4	$56.40	0.2	$56.40	0.2
Conn.	2	1.6	$1,000.00	2.6	$1,000.00	2.6
Totals	125	100.0	$38,133.40	100.0	$38,299.74	100.0

*Include balances from 1926 appropriations.

The town money in Maine was used to pay the wages of town foremen who supervised the control work done by individuals. In New Hampshire and Connecticut, the town funds are turned over to the state and used to eradicate Ribes from definite blocks irrespective of property lines. The State of New Hampshire increased the amount of town funds by twenty percent; and in Connecticut, $4185.08 state money was used on town projects. The town funds in Vermont paid the excess labor charges of foremen, supervising the work of individuals.

Results of Town Cooperation in Ribes Eradication During 1927.

State		N.H.	Conn.	Totals
Acreage examined		213,407	7,169	220,576
Wild Ribes pulled		2,371,940	75,552	2,447,492
Cult. Ribes pulled		2,419	153	2,572
Cost	Towns	$28,924.33	$1000.00	$29,924.33
	State	7,231.08	4185.08	11,416.16
	Total	$36,155.41	$5185.08	$41,340.49
Cost per acre		$.169	$.723	$.187
Ribes per acre		11.1	10.5	11.1

The total acreage worked on the basis of town cooperation (220,576 acres) represents 24.6% of the total area cleared of Ribes in the Northeastern States

during 1927. Of the total acreage worked in cooperation with towns, 96.7% was in New Hampshire.

The percent of increase or decrease in town work during 1927 over 1926 is as follows:

Acreage eradicated	+5.8%
Wild Ribes pulled	-15.5%
Cultivated Ribes pulled	-16.6%
Cost (Towns	-13.2%
Cost (States	+ 7.8%
Cost (Total	-8.2%
Cost per acre	-13.4%
Ribes per acre	-17.1%

III. STATE ERADICATION WORK ON INDIVIDUALS' LANDS.

State		Maine	Mass.	R.I.	Conn.	Totals
Acreage examined		227,929	125,037	9735	5460	368,161
Wild Ribes pulled		30,788	72,923	22,279	364	126,354
Cult. Ribes pulled		-	7,982	521	72	8,575
Cost	State	$1514.27	$7153.73	$1700.86	$29.75*	$10,398.61
	Gov't.	3339.44	-	-	60.60	3,400.04
	Total	$4853.71	$7153.73	$1700.86	$90.35	$13,798.65
Cost per acre		$.021	$.057	$.175	$.017	$.037
Ribes per acre		0.13	0.58	2.3	0.06	0.34

*Cost of time of 20 individuals who assisted in this work.

The total acreage of such non-cooperative state work on private lands (368,161 acres) represents 41.2% of the total area cleared of Ribes in the Northeastern States during 1927. All eradication work in Rhode Island was done on this basis, as the Ribes average less than one per acre and are very localized. In Maine, 87.2% of the total acreage examined in the state was worked in this manner, while in Massachusetts it amounted to 42.5%. This kind of work in Connecticut was performed by Agent Miles with the assistance of 20 owners.

In Massachusetts and Rhode Island, all the costs of such control work was paid by the state, while in Maine, the Government paid 68.8% of the scouting costs. The Federal expenditure in Connecticut represents the cost of Miles' time on this work.

The percent of increase or decrease in 1927 over similar non-cooperative Ribes eradication work on private lands in 1926 is as follows:

Acreage eradicated	+6.4%
Wild Ribes pulled	+19.0%
Cultivated Ribes pulled	-26.2%
Cost (State	-7.6%
Cost (Government	+40.0%
Cost per acre	-5.1%
Ribes per acre	+9.7%

IV. RIBES ERADICATION WORK ON STATE FORESTS DURING 1927.

State	Acreage Examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
N.H.	326	16,429	-	$246.33	$0.755	50.4
Vt.	350	576	-	$180.06	.514	1.6
Mass.	7948	223,142	3345	$1861.28	.234	28.1
Conn.	550	1,663	36	$215.01	.391	3.0
N.Y.	4924	222,043	-	$9694.98	1.97	45.1
Totals	14,098	463,853	3381	$12,197.66	.865	32.9

1. The total acreage (14,098 acres) eradicated on state lands represents 1.6% of the total area cleared of Ribes in the Northeastern States during 1927.

2. The entire cost of this work was paid from state funds. In Massachusetts, the Conservation Department (Division of Forestry) continued its independent examination of lots in various sections of the state, eradicating 220,432 wild Ribes from 859 acres at a total cost of $982.75. In addition, two other Massachusetts state departments conducted Ribes eradication on state lands. This work was supervised by the blister rust control agents, and a total of 2710 wild and 3345 cultivated Ribes were destroyed at a cost of $878.53. The two other state departments contributed $569.94 of the total cost.

3. The blister rust control agents supervised all the state land work in New Hampshire, Vermont, Connecticut, while in New York all such work was directed by the agents, except at the state camp supervised by McAveigh. Here, 1849 acres were cleared of 96,184 wild Ribes at the excessively high cost of $7798.00, or $4.22 per acre. Control work on state forests was conducted in all the New York agent districts except those of Strait, Williams, and Bowlby.

4. The percent of increase or decrease in 1927 over similar state land work in 1926 is as follows:

Acreage eradicated	-23.4%
Ribes destroyed	+32.3%
Total cost	-9.9%
Cost per acre	+17.5%
Ribes per acre	+72.2%

In addition to the control work described in the above four classes, it was necessary in Maine to use regulatory authority in clearing 1387 wild and 144 cultivated Ribes from 55 acres of private land at a cost of $16.93. The state paid for this work, but will be reimbursed by the town who in turn will assess the property owner.

CONTROL WORK ON WHITE MOUNTAIN NATIONAL FOREST.

In addition to the eradication work listed in the previous summaries, the United States Forest Service eradicated 11,350 Ribes from 226 acres in the White Mountain National Forest at a cost of $102.73. This work was supervised by Ranger Smith. A summary of control work on this National Forest for the years 1924-1927, inclusive, is given on page 99.

NURSERY SANITATION WORK

In the Northeastern States, most of the nurseries which grow white pine are located in the states of New York, Massachusetts, and Connecticut. All of these states took action during 1927 to protect their nurseries from blister rust infection.

The Massachusetts Department of Agriculture established the following zones to insure the production of disease-free white pines:

1. A zone including the nursery and an area of 1500 feet from its borders to be free from all Ribes, wild and cultivated.

2. A zone including an area one mile from all borders of the nursery to be free from all black currants (Ribes nigrum).

During 1927, the Massachusetts work was completed around the Bay State Nurseries in Abington, Rockland, Whitman, and Hanover; the Littlefield-Wyman Nursery in Abington; and partially completed around the Framingham Nurseries in Framingham. A total of 2902 wild and 1007 cultivated bushes were removed at a cost of $2213.41.

In Connecticut, approximately 1000 acres were scouted, and Ribes eliminated from ten nurseries and surrounding territory covering a thousand foot protection zone. No wild Ribes were found, but 1027 cultivated bushes were destroyed at a cost of $601.24 to the state, and $61.50 to the cooperating nurserymen. Black currants were eradicated in the thousand foot zone, but it is planned to destroy all such bushes within one mile of nurseries growing white pine.

An intensive nursery sanitation survey was started in New York during November, 1927. Agent Baker has been assigned permanently to this project, while Agent Strait will assist on this work in the Hudson River Valley district.

SUMMARY OF RIBES RE-ERADICATION IN NORTHEASTERN STATES DURING 1927.

State	Acreage Re-examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
Maine	1,010	19,480	-	$438.25	.433	19.3
N.H.	74,034	496,160	341	$9850.29	.133	6.7
Vt.	2,315	18,421	-	$841.73	.31	7.9
Mass.	14,942	42,400	27	$1862.08	.125	2.8
Conn.	8,836	112,384	493	$6848.57	.775	13.9
Totals	101,137	688,845	861	$19,840.92	.196	6.8

The total acreage reworked (101,137 acres) represents 11.3% of all eradication work conducted in the Northeastern States in 1927. Of the total area re-examined, 73.2% was in New Hampshire, where 32.8% of the control work was re-eradication. The acreage re-eradicated of Ribes in Connecticut amounted to 42.2% of all the work done in that state, while in Vermont, Massachusetts, and Maine the percentages were 11.9%, 5.1%, and 0.4% respectively.

The re-eradication work was conducted on individually owned lands by cooperating with pine owners and towns, and on state lands by state paid crews. The following four tables summarize the re-eradication work.

RIBES RE-ERADICATION IN COOPERATION WITH INDIVIDUALS IN THE NORTHEASTERN STATES DURING 1927.

State		Maine	N.H.	Vt.	Mass	Conn.	Totals
Coop Erad.	Cult.Ribes only	-	-	-	-	-	0
	Wild & Cult. Ribes	26	15	12	84	13	150
Acres re-eradicated		1010	5580	2315	10,942	1637	21,484
WILD Ribes pulled		19,480	137,309	18,421	41,246	36,243	252,699
CULT.Ribes pulled		0	55	0	0	314	369
Total Cost	State	0	$325.78	$38.65	$333.60	$883.82	$1581.85
	Towns	$220.25	0	0	0	0	$220.25
	Individuals	$218.00	$1760.05	$803.08	$1203.28	$652.17	$4636.58
	Total	$438.25	$2085.83	$841.73	$1536.88	$1535.99	$6438.68
Cost per acre		.43	.315	.31	.14	.932	.30
Ribes per acre		19.3	24.6	7.9	3.8	22.1	11.8

The re-eradication work conducted in cooperation with individuals (21,484 acres) represents 21.2% of the total area re-examined in New England and New York during 1927, and 7.3 % of all work done in cooperation with individuals (initial and re-eradication). The total acreage reworked by individuals includes 5362 acres cleared of 39,549 wild Ribes without direct state supervision in New Hampshire, Massachusetts and Connecticut, at a total cost of $1124.90.

TOWN COOPERATION IN RIBES RE-ERADICATION DURING 1927.

State	No. Towns Approp.	% Total Number in Each State	Amount Town Money Expended	% Total Funds Expended in Each State
Maine	2	8.0	$220.25	2.9
N.H.	21	84.0	$6200.03	83.6
Conn.	2	8.0	$1000.00	13.5
Totals	25	100.0	$7420.28	100.0

As in the initial control work, the town funds in Maine were utilized to pay the wages of town foremen who supervised the work performed by individuals; while in New Hampshire and Connecticut, the town money was turned over to the State and used to eradicate the Ribes from definite blocks regardless of property lines. In New Hampshire, $1550.00 state money was added to the town funds, and $4185.08 additional state money was used in Connecticut on town re-eradication projects.

RIBES RE-ERADICATION IN COOPERATION WITH TOWNS DURING 1927.

State		N.H.	Conn.	Totals
Acreage re-examined		68,403	7169	75,572
WILD Ribes pulled		358,646	75,552	434,198
CULT. Ribes pulled		286	153	439
Cost	Towns	$6200.03	$1000.00	$7200.03
	State	$1550.00	$4185.08	$5735.08
	Total	$7750.03	$5185.08	$12,935.11
Cost per acre		.113	.723	.171
Ribes per acre		5.2	10.5	5.7

The total acreage re-eradicated of Ribes in cooperation with towns represents 74.7% of all reworked area during 1927. Of the total acreage re-examined on the basis of town cooperation, over 90 percent was in New Hampshire.

RIBES RE-ERADICATION WORK ON STATE FORESTS DURING 1927.

State	Acreage Re-examined	Ribes Pulled		Total Cost	Per Acre Values	
		Wild	Cult.		Cost	Ribes
N.H.	51	205	0	$14.43	.283	4.0
Mass.	4000	1154	27	$325.20	.08	0.3
Conn.	30	589	26	$127.50	.217	19.6
Totals	4081	1948	53	$467.13	.114	0.5

STATE COMPENSATION FOR CULTIVATED RIBES DESTROYED IN THE NORTHEASTERN STATES DURING 1927.

State	Total No. Cult. Ribes Destroyed	No. Bushes For Which Compensation Was Paid	% Total Bushes Paid For	No. Persons Paid Compensation	Amount Paid	Average Per Bush Compensation
Maine	10,225	0	-	0	0	0
N.H.	2,510	20	0.8	1	$10.00	$0.50
Vt.	314	32	10.2	3	$16.00	.50
Mass.	31,753	2511*	7.9	46*	$1044.65*	.416
R.I.	521	15	2.9	1	$5.25	.35
Conn.	1,208	0	-	0	0	0
N.Y.	2,207	(Est.) 858	38.8	75	$257.46	.30
Totals 1927	48,738	3436	7.0	126	$1333.36	.389
Totals 1926	51,471	4187	8.1	33	$1531.60	.366

*Claims received, but not settled.

The amount listed above for compensation in Massachusetts represents claims made by owners for bushes destroyed during 1927, but such claims will not be settled until the spring of 1928. It is probable that some of these claims will not be settled for the full amount requested. In 1926, for example, the claims for compensation in Massachusetts amounted to $1644.75, but the state paid only $1382.75.

CLASSIFICATION OF COOPERATIVE BLISTER RUST CONTROL FUNDS USED ON PROJECT "RIBES ERADICATION" IN THE NORTHEASTERN STATES DURING 1927.

Expenditures	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
Individuals	$9,324.06	$3,722.34	7106.05	$8,459.42	-	1470.39	18,958.55	$49,040.81
Towns	8,319.01	28,924.33	56.40	-	-	1000.00	-	38,299.74
State Appropriations	1,531.20	8,323.44	1071.50	15,714.51	1700.86	5974.04*	26,565.41	60,880.96
All Other State Funds	-	-	-	1,552.69	-	118.50	-	1,671.19
Federal Funds	3,339.44	-	-	-	-	70.27	-	3,409.71
TOTAL	22,513.71	40,970.11	8233.95	25,726.62	1700.86	8633.20	45,523.96	153,302.41

*Includes $96.51 spent in cooperation with other state department on state lands; $23.33 cost of cultivated Ribes eradication, and $30.00 checking; the latter two items not included in BRE3a summary.

1. The funds spent on the Ribes eradication project were for laborers, scouts, and foremen. The cost of the state checkers in New Hampshire and the eradication assistants in New York are not included in this project.

2. The total cost of "Ribes Eradication" ($153,302.41) represents 44.4% of all state and federal expenditures on all blister rust control projects in New England and New York during 1927, compared with $148,405.56 and a percentage figure of 45.7% in 1926.

3. Proportion paid by the various cooperators during 1926 and 1927 on the project - "Ribes Eradication":

Source of Funds	Amount Expended 1927	Amount Expended 1926	% + or - 1927 over 1926	Percent of Total Amount Spent by Each Cooperating class	
				1927	1926
Individuals	$49,040.81	$44,172.88	+11.0%	32.0	29.8
Towns	38,299774	41,223.95	-7.1%	25.0	27.7
State Approp.	60,880.96	58,560.53	+4.0%	39.7	39.4
Other State Funds	1,671.19	1,754.40	-4.8%	1.1	1.2
Gov't. (Scouting)	3,409.71	2,693.80	+26.6%	2.2	1.9
TOTAL	153,302.41	$148,405.56	+3.3%	100.0	100.0

4. Percent of total amount of money used, in each state, by all cooperators on Ribes eradication project, expended by individuals:

Year	Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
1927	41.4	9.1	86.3	32.9	17.0	41.6	32.0
1926	45.2	6.0	76.5	30.4	27.9	38.4	29.8

4 (a). Comparison of the percentage of the cost to individuals, in each state, to the total cost to individuals in all statesfor the project - "Ribes Eradication" during 1926 and 1927:

Year	Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Totals
1927	19.0	7.6	14.5	17.2	3.0	38.7	100.0
1926	21.7	6.2	17.8	18.8	3.2	32.3	100.0

5. Percent of total amount of money used, in each state, by all cooperators on "Ribes Eradication" project, expended from town funds:

Year	Maine	N.H.	Vt.	Conn.	Totals
1927	37.0	70.6	0.7	11.5	25.0
1926	34.4	73.7	1.2	5.0	27.7

6. Percent of total funds used on "Ribes Eradication" project by all cooperators, in each state, expended from state appropriations:

Year	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
1927	6.8	20.3	13.0	61.1	100.0	69.2	58.4	39.7
1926	9.0	20.3	22.3	63.2	100.0	61.9	61.6	39.4

6-(a). Percent of total state blister rust appropriation used on project "Ribes Eradication" in each state:

Year	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
1927	27.3	43.9	51.6	87.5	99.6	59.9	41.3	50.5
1926	39.5	47.2	67.5	95.7	76.9	55.9	43.9	55.3

7. The expenditure under the heading "All Other State Funds" was for eradication work done by other state departments on state lands in Massachusetts, and by the State Forestry Department in Connecticut. This expenditure of $1671.19 represents 1.1% of the total amount of money spent by all cooperators on "Ribes Eradication" in the Northeastern States. The Massachusetts expenditure of $1552.69 was 6.0% of the total funds spent on "Ribes Eradication" in that state, while the money expended in Connecticut from this source ($118.50) was 1.4% of the total cost of "Ribes Eradication" in that state.

8. The Federal expenditure of $3409.71 was for Ribes scouting performed by temporary agents in Maine, and a small amount of such work done by Agent Miles in Connecticut. This expenditure represents 2.2% of the entire cost of "Ribes Eradication" in 1927.

PERCENT OF TIME SPENT ON EACH ACTIVITY BY AVERAGE PERMANENT AGENT IN THE NORTHEASTERN STATES DURING 1927.

State	Education	Personal Service	Super-vision	Scouting	Eradi-cation	Field Data	Office	Travel
Maine	8.7	14.2	19.2	3.6	-	1.1	28.2	25.2
N.H.	11.7	21.8	14.3	6.7	0.5	2.6	19.4	23.0
Vt.	8.8	29.0	11.1	5.4	0.1	2.2	19.0	24.4
Mass.	7.8	13.8	19.6	3.9	-	6.1	25.6	23.2
R.I.	13.5	8.5	10.2	5.4	-	0.6	47.6	14.2
Conn.	14.7	9.4	10.5	16.7	0.1	4.8	25.6	18.2
N.Y.	11.4	15.4	9.4	9.3	0.1	4.1	26.1	24.2
Totals 1927	10.5	17.3	13.9	7.0	0.2	3.5	24.3	23.3
Totals 1926	17.3	14.8	12.3	7.0	0.4	1.6	24.8	21.8

During 1927, the 36 permanent and 19 temporary agents worked a total of 102,783 hours; 13.4% of which was performed by the temporary men. The average permanent agent worked 332.8 eight hour working days during the year.

In compiling the time data, assistant state leader Kennedy's time in New York, and the time spent by agents Clave and Doore, of Massachusetts, on special assignments, was not included.

Due to the fact that the revised weekly itinerary forms were not available for use until July 1, 1927, no summary is possible for the entire year on the basis of the changes in this report, namely; limiting the project- "Office" to routine office work, and dividing the projects - "Education, Service, Supervision, and Field Data" into the two classes of such work - "Office" and "Field". The "Office" project, as given in the table above, is therefore based on all time spent in the office during the year. However, from July 1 to December 31, 1927, the permanent agents reported a total of 4508 office hours chargeable to other projects. Using this as a basis,for the entire year, the percent of time spent on the project "Office" would be reduced from 24.3% to 13.8%, and the projects - "Education, Service, Supervision, and Field Data" increased to 13.3%, 18.4%, 18.2%, and 5.8%, respectively.

State	State Leaders and Assistant Leaders	Permanent B.R.C. Agents	Temporary B.R.C. Agents	State Checkers	State Foremen	State Scouts	State Laborers	Owners' Labor	TOTAL
Maine	1	5	19	0	71	*	0	1868	1964
N.H.	2	8	0	4	24	25	150	5	218
Vt.	0	3	0	0	6	0	12	142	163
Mass.	1	7	0	0	28	0	0	2901	2937
R.I.	0	1	0	0	1	4	0	0	6
Conn.	1	2	0	0	5	3	64	20	95
N.Y.	2	10	0	6**	44	1	56	1500	1619
TOTALS	7	36	19	10	179	33	282	6436	7002

*Included with "Temporary Blister Rust Control Agents".
**Eradication assistants.

NOTE: In addition to the personnel listed above, one state supervisor was employed in Connecticut, and one in New York.

PERSONNEL EMPLOYED ON COOPERATIVE B. R. C. WORK
IN NEW ENGLAND AND NEW YORK DURING 1927.
(Regardless of length of time worked)

During 1927, a total of 567 state and federal employees were engaged in cooperative blister rust control work in New England and New York. In addition, 6436 individuals (pine or Ribes owners, or their employees) assisted in eradicating Ribes. Thus, 7004 persons actually participated in the field work. Also, many owners paid for the work on their lands, but took no personal part in pulling the bushes; and several hundred other persons permitted the destruction of their cultivated bushes without compensation. Estimated conservatively, 7500 persons had more or less of an active part in the control work. The agents also reported that 8008 individuals gave their general support to the work; making a total of approximately 15,000 people who cooperated directly or indirectly in the control work.

Source of Funds	State Appropriations	Nursery Funds	Town Funds	Individual Funds or Labor	Other Coop. State Funds	Total State Funds	Total Federal $ For $ Funds	Total State and Federal Funds
Maine	$5601.81	$500.00	$8319.01	$9324.06	-	$23,744.88	$21,636.80	$45,381.68
N.H.	18,918.81	-	28,924.33	3722.34	-	51,565.48	33,805.24	85,370.72
Vt.	2077.26	-	56.40	7106.05	-	9,239.71	10,512.00	19,751.71
Mass.	17,962.95	2213.41	-	8459442	$1649.00	30,284.78	24,681.12	54,965.90
R.I.	1706.71	500.00	-	-	-	2,206.71	1,649.19	3,855.90
Conn.	9962.95	-	1000.00	1470.39	118.50	12,551.84	8,613.00	21,164.84
N.Y.	64,335.65	-	-	18,958.55	-	83,294.20	31,563.55	114,857.75
TOTALS	$120,566.14	$3213.41	$38,299.74	$49,040.81	$1767.50	$212,887.60	$132,460.90	$345,348.50

STATE AND FEDERAL COOPERATIVE BLISTER RUST CONTROL FUNDS USED
FOR ALL PROJECTS IN NEW ENGLAND AND NEW YORK DURING THE CALENDAR YEAR 1927.

1. The Government paid 38.4% and the states and their cooperators 61.6% of the total costs of all cooperative blister rust control activities in New England and New York during 1927.

2. Comparison of cooperative expenditures in New England and New York paid from various sources during 1926 and 1927:

Source of Funds	Amount Expended 1927	Amount Expended 1926	% + or - Over 1926	Percent of Total Expenditures	
				1927	1926
Federal $ For $ Money	$132,460.90	$130,268.07	+1.7	38.4	40.2
State Appropriations	120,566.14	105,917.41	+13.8	34.9	32.6
Town Appropriations	38,299.74	41,233.95	-7.1	11.1	12.7
Individual Funds	49,040.81	44,254.88	+10.8	14.2	13.7
Nursery Funds	3,213.41	614.58	+423.2	0.9	0.2
All Other State Funds	1,767.50	2,027.44	-12.8	0.5	0.6
TOTAL FUNDS	$345,348.50	$324,306.33	+6.5	100.0	100.0

The large increase in "Nursery Funds" was due primarily to the expenditure of $2213.41 on nursery sanitation work in Massachusetts.

3. Comparison of amount of state funds derived from various sources during 1926 and 1927:

Source of Funds	Percent of Total State Funds	
	1927	1926
State Appropriations	56.7	54.6
Town Appropriations	18.0	21.2
Individual Funds	23.0	22.8
Nursery Funds	1.5	0.3
All Other State Funds	0.8	1.1

A total of $212,887.60 state money was expended during 1927. This is $18,649.34 more than was spent in 1926, and represents an increase of 9.6%, even though less state money was secured from two of the five sources.

4. Comparison of percent of total state funds, in each state, derived from State Appropriations:

State	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Total
1927	23.6	36.8	22.5	59.3	77.3	79.4	77.2	56.7
1926	21.8	34.9	29.6	63.8	90.2	77.1	78.5	54.6

Only three states; Maine, Connecticut, and New York, spent more money from state appropriations in 1927 than during the previous year, and in New York even though more money was expended from this source, yet the percent of the total state funds derived from the state appropriation decreased 1.3%. The reverse was the case in New Hampshire, where even though less state appropriation funds were used, yet it represented 1.9% more of the total state funds expended.

5. Percent of total state funds, in each state, expended from Town Appropriations:

Year	Maine	N.H.	Vt.	Conn.	Total
1927	35.0	56.0	0.6	8.0	18.0
1926	32.8	60.0	1.1	3.5	21.2

$2924.21 less town money was expended during 1927 than in 1926. This was due to a decrease of $4607.13 in town funds in New Hampshire, which was partially offset by increases of $1000.12 in Maine, and $750.00 in Connecticut. Corresponding increases and decreases occurred in the proportionate share of total state funds used from town appropriations in these states.

6. Percent of total state funds, in each state, expended by Individual Cooperators:

Year	Maine	N.H.	Vt.	Mass.	Conn.	N.Y.	Total
1927	39.3	7.2	76.9	27.9	11.7	22.8	23.0
1926	43.1	4.9	69.3	29.5	19.4	21.5	22.8

More individual cooperation was obtained in New Hampshire, Massachusetts, Connecticut, and New York in 1927 than during the previous year. However, in Massachusetts, the proportionate share of the total state funds used from this source was 1.6% less than in 1926. The largest increase was in New York,

amounting to $4689.70. The decreases in the other states were slight - Maine, $288.61; Vermont, $817.89. In the latter state, however, the proportionate share of the total state funds derived from this source was 7.6% greater than in 1926, due to a decrease in state appropriation expenditures.

7. Special nursery funds were received in three states (Maine, Massachusetts, and Rhode Island) during 1927. In Massachusetts, the $2213.41 expenditure was for nursery sanitation work, which is reported in detail on page 53. The Rhode Island money was a special allotment for nursery inspection, scouting and general supervision, while in Maine the funds were used for inspecting nurseries.

8. The expenditure listed under "All Other Cooperative State Funds" represents money spent on control work by other state departments in Massachusetts, and the State Forestry Department in Connecticut.

9. Total State Funds Expended During 1926 and 1927:

State	1926	1927	% Increase or Decrease Over 1926
Maine	$22,296.90	$23,744.88	+6.5%
New Hampshire	55,789.05	51,565.45	-7.5%
Vermont	11,435.42	9,239.71	-19.2%
Massachusetts	28,165.26	30,284.78	+7.5%
Rhode Island	2,773.04	2,206.71	-20.4%
Connecticut	7,264.74	12,551.84	+72.8%
New York	66,313.85	83,294.20	+25.6%
TOTALS	$194,038.26	$212,887.60	+9.7%

10. Federal $ For $ Cooperative Funds Expended During 1926 and 1927:

State	1926	1927	Percent Increase or Decrease Over 1926
Maine	$19,005.07	$21,636.80	+13.8%
New Hampshire	32,342.35	33,805.24	+4.5%
Vermont	10,223.41	10,512.00	+2.8%
Massachusetts	26,710.39	24,681.12	-7.6%
Rhode Island	3,028.50	1,649.19	-45.5%
Connecticut	7,713.06	8,613.00	+11.7%
New York	31,245.29	31,563.55	+1.0%
TOTALS	$130,268.07	$132,460.90	+1.7%

11. Percent of total state and federal funds, in each state, expended from federal $ for $ money:

Year	Maine	N.H.	Vt.	Mass.	R.I.	Conn.	N.Y.	Totals
1927	47.7	39.6	53.2	44.9	42.8	40.7	27.5	38.4
1926	46.0	36.7	47.2	48.7	52.2	51.5	32.0	40.2

(a) During 1927, federal funds were matched on a $ for $ basis in all states, except Vermont, where federal expenditures exceeded those of the state by $1272.29. However, on the basis of the fiscal year, Vermont will doubtless be able to meet its obligations.

(b) The proportional part of the total costs paid by the Government, in each state, varied from 27.5% in New York to 53.2% in Vermont.

(c) Item 10 shows there were increases in expenditures of federal funds in all states, except Massachusetts and Rhode Island. The decrease of 45.5% in Rhode Island was caused by no agent being employed in that state during the first 3½ months of 1927. The decrease in Massachusetts is primarily due to several of the agents being assigned to quarantine inspection during the fall and winter months.

STATE AND FEDERAL COOPERATIVE BLISTER RUST CONTROL EXPENDITURES, BY PROJECTS, IN NEW ENGLAND AND NEW YORK DURING THE CALENDAR YEAR 1927.

Inorder to give a better general analysis of cooperative expenditures, by projects, the following summary lists comparative data for the years 1923 to 1927, inclusive.

Summary of Total State and Federal Expenditures, By Projects.

Year	1923	1924	1925	1926	1927
Total Amount Expended By All Cooperators	$314,295.98	$341,681.52	$313,971.52	$324,306.33	$345,348.50
Percent of total, by projects:					
Ribes Eradication	49.4	49.5	44.1	45.7	44.4
B.R.C.A.A.	34.9	33.2	37.6	35.1	33.7
Supervision	8.7	9.5	10.6	11.2	6.9
Inspection	-	2.8	2.8	0.9	4.8
Field Data	3.8	3.5	2.7	3.5	6.6
Miscellaneous	2.9	1.2	1.7	3.4	2.0
Ribes Compensation	0.1	0.1	0.5	0.2	0.5
Nursery Sanitation	-	-	-	-	1.1

Summary of Total State Expenditures, By Projects

Total Amount Cooperative State Expenditures	$195,487.49	$218,849.56	$182,872.40	$194,038.26	$212,887.60
Percent of total, by projects:					
Ribes eradication	78.1	75.5	74.6	75.1	70.4
Supervision	6.3	6.8	7.3	7.8	12.9
B.R.C.A.A.	4.5	5.8	5.2	4.5	2.4
Field Data	6.2	5.5	4.7	5.7	10.8
Inspection	-	4.2	4.5	1.5	7.7
Miscellaneous	4.6	1.9	2.8	5.1	3.2
Ribes Compensation	0.2	0.2	0.9	0.3	0.8
Nursery Sanitation	-	-	-	-	1.8

Summary of Total Federal Expenditures, By Projects

Total Amount Federal Expenditures	$118,808.49	$122,831.96	$131,098.84	$130,268.07	$132,460.90
Percent of Total, By Projects:					
B.R.C.A.A.	84.9	82.1	82.8	80.7	84.1
Supervision	12.7	1433	15.3	16.4	13.3
Ribes Scouting (Erad.)	2.4	3.2	1.6	2.1	2.6
Inspection (Checking)	-	0.4	0.3	-	-
Miscellaneous	-	-	-	0.6	-
Field Data	-	-	-	0.2	-

Percent of Total Cost of Projects Paid By Government

Year	1923	1924	1925	1926	1927
B.R.C.A.A.	92.0	88.8	91.9	92.3	95.7
Supervision	55.0	54.0	60.1	58.6	73.9
Ribes Scouting (Eradication)	1.8	2.4	1.5	1.8	2.3
Inspection (Checking)	-	4.6	4.5	-	-
Field Data	-	-	-	2.6	-
Miscellaneous	-	-	-	7.9	-

State	Amount Paid By State	Amount Paid By Gov't.	Total Amount Paid	% Supervision Paid By		% Total State Expenditures Paid For Super.	% Total Gov't. Expenditures Paid For Super.	% Total Expenditures (All Projects) Paid For Super.
				State	Gov't.			
Maine	$2009.03	$3022.25	$5031.28	39.9	60.1	8.4	14.0	11.1
N.H.	1536.30	3769.09	5305.39	28.9	71.1	3.0	11.2	6.2
Vt.	943.51	1312.23	2255.74	41.8	58.2	10.2	12.5	11.4
Mass.	772.67	3234.33	4007.00	19.3	80.7	2.6	13.1	7.3
R.I.	-	412.30	412.30	-	100.0	-	25.0	10.7
Conn.	981.59	1875.33	2856.92	34.4	65.6	7.8	21.8	13.5
N.Y.	-	4047.19	4047.19	-	100.0	-	12.8	3.5
TOTALS	$6243.10	$17,672.72	$23,915.82	26.1	73.9	2.9	13.3	6.9

STATE AND FEDERAL EXPENDITURES ON PROJECT "SUPERVISION".

1. The expenditures made on this project include salaries and expenses of all the state leaders, except McIntyre; also in New Hampshire, Vermont, Massachusetts, and Connecticut, part of the wages paid clerks (one in each state) for their time spent on blister rust control work. In Vermont, one quarter of Holden's time was charged to this project, also Merrill's time while on blister rust work. In addition, Commissioner Ross charged his expenses, while on blister rust supervisory work, to this project. In Rhode Island, one fourth of Hurford's time was charged to "Supervision", and in Connecticut, one half of Riley's time was listed under this project. McIntyre's salary and expenses in New York are paid from other funds, and no charge is made against "Blister Rust Control". All of York's time was recorded under "Field Data". No state expenditures were charged to "Supervision" in Rhode Island.

2. In comparing total expenditures for "Supervision" in the various states during 1927 with the previous year, increases are noted as follows: Maine, 24.8%; Vermont, 7.4%; and Massachusetts, 5.7%; while substantial decreases occurred in New Hampshire, 44.5%; Rhode Island, 74.4%; Connecticut, 32.4%; and New York, 62.7%. The large decrease in New Hampshire was due to assistant state leader Corliss being transferred to quarantine inspection work. The decreases in Rhode Island and New York are due to reasons given under paragraph 1. In 1926, all of Riley's time in Connecticut was charged to "Supervision". As his supervisory duties comprise only a part of his work, half of his time during 1927 was allotted to "Blister Rust Control Agent Activities".

State	Amount Paid By State	Amount Paid By Gov't.	Total Amount Paid	% B.R.C.A.A. Paid By		% Total State Expenditures Paid For B.R.C.A.A.	% Total Gov't. Expenditures Paid For B.R.C.A.A.	% Total Expenditures (All Projects) Paid For B.R.C.A.A.
				State	Gov't.			
Maine	$1773.72	$15,275.11	$17,048.83	10.4	89.6	7.5	70.6	37.5
N.H.	678.32	30,036.15	30,714.47	2.2	97.8	1.3	88.8	36.0
Vt.	-	9,199.77	9,199.77	-	100.0	-	87.5	46.6
Mass.	145.33	21,446.79	21,592.12	0.7	99.3	0.5	86.9	39.3
R.I.	-	1,236.89	1,236.89	-	100.0	-	75.0	32.1
Conn.	43.72	6,667.40	6,711.12	0.7	99.3	0.4	77.4	31.8
N.Y.	2314.48	27,516.36	29,830.84	7.9	92.1	2.8	87.2	26.0
TOTALS	$4955.57	$111,378.47	$116,334.04	4.3	95.7	2.4	84.1	33.7

STATE AND FEDERAL COOPERATIVE EXPENDITURES ON PROJECT - "BLISTER RUST CONTROL AGENT ACTIVITIES".

1. The funds expended on this project paid the salaries and expenses of the blister rust control agents and, in a few cases, cooperative scouts doing similar work. It also includes small expenditures for educational material. In Vermont, three quarters of Holden's time was charged to this project; in Rhode Island, three quarters of Hurford's time, and in Connecticut, half of Riley's cost was allotted to "Blister Rust Control Agent Activities". In New York, federal wages paid to Adey, Smith, and Hinchman were charged to this project. The state expenditure in New York includes Stevens' time from July 1 to December 31, and Agent Nichols' expenses.

2. Comparing total expenditures for "Blister Rust Control Agent Activities" in the various states during 1927 with the previous year, increases occurred in Maine, 10.4%; New Hampshire, 17.3%; Vermont, 4.3%; and Connecticut, 65.4%. Decreases are noted in Massachusetts, 8.0%; Rhode Island, 38.7%; and New York, 11.9%. The large increase in Connecticut was due to half of Riley's costs being charged to this project, while the apparently large decrease in Rhode Island is explained by the fact that no agent was employed from January 1 to April 15, 1927.

State	Amount Paid By State	Amount Paid By Gov't.	Total Amount Paid	% Ribes Erad. Paid By		% Total State Expenditures Paid For Ribes Eradication	% Total Gov't. Expenditures Paid For Ribes Eradication	% Total Expenditures (All Projects) Paid For Ribes Eradication
				State	Gov't.			
Maine	$19,174.27	$3339.44	$22,513.71	85.2	14.8	80.8	15.4	49.6
N.H.	40,970.11	-	40,970.11	100.0	-	79.5	-	48.0
Vt.	8,233.95	-	8,233.95	100.0	-	89.1	-	41.7
Mass.	25,726.62	-	25,726.62	100.0	-	85.0	-	46.8
R.I.	1,700.86	-	1,700.86	100.0	-	77.1	-	44.1
Conn.	8,562.93	70.27	8,633.20	99.2	0.8	68.2	0.8	40.8
N.Y.	45,523.96	-	45,523.96	100.0	-	54.7	-	39.6
TOTALS	$149,892.70	$3409.71	$153,302.41	97.8	2.2	70.4	2.6	44.4

STATE AND FEDERAL EXPENDITURES ON PROJECT - "RIBES ERADICATION".

1. The expenditures for "Ribes Eradication" paid the wages of men employed in pulling Ribes, including owners' labor, linemen, scouts, and foremen. In Connecticut and New York, the board and lodging cost of the men in the state camps is also included. However, the wages of these men are correspondingly lower than in the other states.

2. The federal expenditures were for several temporary men used for Ribes scouting in Maine, and for a small amount of such work by Agent Miles in Connecticut.

3. Although the total amount of state funds spent on "Ribes Eradication" during 1927 in the Northeastern States was $4180.94, or 2.9%, more than the previous year, four of the seven states spent less money. New York spent $8394.20, or 22.6%, more on control work than during 1926; thus bringing the total for all states up to more than 1926. Rhode Island, Connecticut, and New York spent a greater proportion of state money on this project in 1927 than during the previous year.

STATE EXPENDITURES ON PROJECT - "INSPECTION".

State	Amount Paid By State	% Total State Expenditures Paid For "Inspection"	% Total State and Federal Expenditures Paid For "Inspection"
N.H.	$3,505.66	6.8	4.1
N.Y.	12,964.72	15.6	11.3
TOTALS	$16,470.38	7.7	4.8

This expenditure in New Hampshire was for four state checkers during the period May 1 to September 30, while the New York amount covers the cost of the eradication assistants and camp supervisor McAveigh.

Such expenditures, although closely allied to the project - "Ribes Eradication", are considered as a separate project.

STATE EXPENDITURES ON PROJECT - "RIBES COMPENSATION".

State	Amount Paid By State	% Total State Expenditures Paid For "Ribes Compensation"	% Total State and Federal Expenditures (All Projects Paid For Ribes Compensation
N.H.	$10.00	0.02	0.01
Vt.	16.00	0.2	0.1
Mass.	1382.75	4.5	2.5
R.I.	5.25	0.2	0.1
N.Y.	257.46	0.3	0.2
TOTALS	$1671.46	0.8	0.5

The compensation listed for Massachusetts was for bushes destroyed in 1926. In this state, compensation claims for cultivated Ribes destroyed during 1927 are not settled until the spring of 1928.

STATE EXPENDITURES FOR PROJECT - "NURSERY SANITATION".

State	Amount Paid By State	% Total State Expenditures Paid For "Nursery Sanitation"	% Total State and Federal Expenditures Paid For "Nursery Sanitation"
Maine	$500.00	2.1	1.1
Mass.	2213.41	7.3	4.0
R.I.	500.00	22.7	13.0
Conn.	662.74	5.3	3.1
TOTALS	$3876.15	1.8	1.1

The Maine expenditure was for inspection work in state nurseries. In Massachusetts, the State Department of Agriculture used $2213.41 of their funds in nursery sanitation work. The Rhode Island money was a special allotment used for nursery inspection and general supervision. In Connecticut, the state inaugurated a nursery sanitation program during 1927, and a good start was made in this direction. The expenditure of $662.74 in Connecticut includes $61.50 spent by nurserymen on this work.

STATE EXPENDITURES FOR PROJECT - "FIELD DATA".

State	Amount Paid By State	% Total State Expenditures Paid For "Field Data"	% Total State and Federal Expenditures Paid For "Field Data"
N.H.	$4187.34	8.1	4.9
Mass.	44.00	0.1	0.1
Conn.	1195.29	9.5	5.6
N.Y.	17,463.16	20.9	15.2
TOTALS	$22,889.79	10.8	6.6

The money spent on this project in New Hampshire was the cost of the state checkers during the period January 1 to April 30 and October 1 to December 31, when they were employed on special field studies.

The expenditure in Connecticut was for elimination work and includes $195.03 state money used on the crew experiment conducted by Riley.

The large expenditure in New York includes the cost of York, Littlefield, and Snell on investigational work.

STATE EXPENDITURES FOR PROJECT - "MISCELLANEOUS".

State	Amount Paid By State	% Total State Expenditures Paid For "Miscellaneous"	% Total State and Federal Expenditures Paid For "Miscellaneous"
Maine	$287.85	1.2	0.7
N.H.	677.75	1.3	0.8
Vt.	46.25	0.5	0.2
R.I.	0.60	-	-
Conn.	1105.57	8.8	5.2
N.Y.	4770.42	5.7	4.2
TOTALS	$6888.45	3.2	2.0

SUMMARY OF STATE AND FEDERAL EXPENDITURES, BY PROJECTS, IN THE NORTHEASTERN STATES DURING 1927.

Project	State Expenditures	Gov't. Expenditures	Total Expenditures	% Total State Expend.	% Total Gov't. Expend.	% Total State And Gov't. Expend.
Supervision	$6,243.10	$17,672.72	$23,915.82	2.9	13.3	6.9
Ribes Eradication	149,892.70	(Scouting) 3,409.71	153,302.41	70.4	2.6	44.4
B.R.C.A.A.	4,955.57	111,378.47	116,334.04	2.4	84.1	33.7
Ribes Compensation	1,671.46	-	1,671.46	0.8	-	0.5
Nursery Sanitation	3,876.15	-	3,876.15	1.8	-	1.1
Inspection	16,470.38	-	16,470.38	7.7	-	4.8
Field Data	22,889.79	-	22,889.79	10.8	-	6.6
Misc.	6,888.45	-	6,888.45	3.2	-	2.0
TOTALS	212,887.60	$132,460.90	$345,348.50	100.0	100.0	100.0

For basis of projects, see destailed description for each state on following sheets.

STATE AND FEDERAL EXPENDITURES IN MAINE
DURING 1927 BY PROJECTS .

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects) Paid For
Supervision	$2009.03	$3022.25	$5031.28	8.4	14.0	11.1
Ribes Eradication	$19,174.27	$3339.44	$22,513.71	80.8	15.4	49.6
B.R.C.A.A.	$1773.72	$15,275.11	$17,048.83	7.5	70.6	37.5
Ribes Compensation	0	0	0	-	-	-
Nursery Sanitation	$500.00	0	$500.00	2.1	-	1.1
Miscellaneous	$287.86	0	$287.86	1.2	-	0.7
TOTALS	$23,744.88	$21,636.80	$45,381.68	100.0	100.0	100.0

Basis For Projects

Supervision: Salary and expenses of state leader, Government paying salary and state the expenses.

Ribes Eradication: Owners labor, town foremen, time spent by state and federal scouts in scouting for Ribes.

B.R.C.A.A.: Total salary and expenses of permanent agents and part of cost for temporary agents for time spent on B.R.C.A.A.-educational material.

Nursery Sanitation: Funds spent under Briscoe's direction on inspection of state nurseries.

STATE AND FEDERAL EXPENDITURES IN NEW HAMPSHIRE
DURING 1927, BY PROJECTS.

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects Paid For.
Supervision	$1536.30	$3769.09	$5305.39	3.0	11.2	6.2
Ribes Eradication	$40,970.11	-	$40,970.11	79.5	-	48.0
B.R.C.A.A.	678.32	$30,036.15	$30,714.47	1.3	88.8	36.0
Ribes Compensation	$10.00	-	$10.00	0.02	-	0.01
Field Data	$4187.34	-	$4187.34	8.1	-	4.9
Inspection	$3505.66	-	$3505.66	6.8	-	4.1
Miscellaneous	$677.75	-	$677.75	1.3	-	0.8
TOTALS	$51,565.48	$33,805.24	$85,370.72	100.0	100.0	100.0

Basis For Projects

Supervision: Salary and expenses of state leader, paid by Government; salary of blister rust clerk, $35. per month of which is paid by Government;- salary and expenses of assistant leader (Corliss) January-March, 1927.

Ribes Eradication: Wages and transportation expenses of laborers,, scouts and foremen engaged in eradicating Ribes.

B.R.C.C.A.: Salary and expenses of blister rust control agents,- educational material.

Field Data: Cost of inspectors, during January-April, and October-December, while engaged in special field studies.

Inspection: Cost of four inspectors, during May-September, while doing checking on Ribes eradication.

STATE AND FEDERAL EXPENDITURES IN VERMONT
DURING 1927, BY PROJECTS

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects) Paid For.
Supervision	$943.51	$1,312.23	$2,255.74	10.2	12.5	11.4
Ribes Eradication	$8233.95	-	$8,233.95	89.1	-	41.7
B.R.C.A.A.	-	$9,199.77	$9,199.77	-	87.5	46.6
Ribes Compensation	$16.00	-	$16.00	0.2	-	0.1
Miscellaneous	$46.25	-	$46.25	0.5	-	0.2
TOTALS	$9239.71	$10,512.00	$19,751.71	100.0	100.0	100.0

Basis For Projects

Supervision: One-Fourth of Holden's salary and expenses paid by Government; time spent by Merrill on blister rust work; and expenses of Ross while in field on blister rust work, paid by state. Government also pays a part time clerk at the Montpelier Office, $50. per month.

Ribes Eradication: Owners labor and wages of foremen; state pays cost of transportation of foremen between jobs.

B.R.C.A.A.: Total salary and expenses of Bradder and Rose; three-fourths cost of Holden's salary and expenses, paid by Government.

STATE AND FEDERAL EXPENDITURES IN MASSACHUSETTS
DURING 1927, BY PROJECTS.

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects) Paid For.
Supervision	$772.67	$3,234.33	$4,007.00	2.6	13.1	7.3
Ribes Eradication	$25,726.62	-	$25,726.62	85.0	-	46.8
B.R.C.A.A.	$145.33	$21,446.79	$21,592.12	0.5	86.9	39.3
Ribes Compensation	$1,382.75	-	$1,382.75	4.5	-	2.5
Nursery Sanitation	$2,213.41	-	$2,213.41	7.3	-	4.0
Field Data	$44.00	-	$44.00	0.1	-	0.1
Miscellaneous	-	-	-	-	-	-
TOTALS	$30,284.78	$24,681.12	$54,965.90	100.0	100.0	100.0

Basis Of Projects

Supervision: Salary and expenses of state leader, former paid by Government, latter by state; $20. per month paid by Government to part time clerk for assistance on blister rust work.

Ribes Eradication: Owners labor; state inspectors (scouts, foremen.)

B.R.C.A.A.: Salary and expenses of blister rust control agents; educational materials.

Nursery Sanitation: Cost of inspecting nurseries and their environs for Ribes and the eradicating such bushes, paid from special state nursery funds.

STATE AND FEDERAL EXPENDITURES IN RHODE ISLAND
DURING 1927, BY PROJECTS.

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects) Paid For.
Supervision	-	$412.30	$412.30	-	25.0	10.7
Ribes Eradication	$1700.86	-	$1700.86	77.1	-	44.1
B.R.C.A.A.	-	$1236.89	$1236.89	-	75.0	32.1
Ribes Compensation	$5.25	-	$5.25	0.2	-	0.1
Nursery Sanitation	$500.00	-	$500.00	22.7	-	13.0
Miscellaneous	$0.60	-	$0.60	-	-	-
TOTALS	$2206.71	$1649.19	$3855.90	100.0	100.0	100.0

Basis of Projects

Supervision: One-fourth of Hurford's salary and expenses, paid by Government.

Ribes Eradication: Wages and transportation expenses of five state scouts.

B.R.C.A.A: Three-fourths of Hurford's salary and expenses, paid by Government.

Nursery Sanitation: $500. of state funds allotted for inspection of nurseries.

STATE AND FEDERAL EXPENDITURES IN CONNECTICUT
DURING 1927, BY PROJECTS.

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't Exp. Paid For	% Total Exp. (All Projects) Paid For
Supervision	$981.59	$1875.33	$2,856.92	7.8	21.8	13.5
Ribes Eradication	$8,562.93	$70.27	$8,633.20	68.2	0.8	40.8
B.R.C.A.A.	$43.72	$6667.40	$6,711.12	0.4	77.4	31.8
Ribes Compensation	-	-	-	-	-	-
Nursery Sanitation	$662.74	-	$662.74	5.3	-	3.1
Field Data	$1195.29	-	$1,195.29	9.5	-	5.6
Miscellaneous	$1105.57	-	$1,105.57	8.8	-	5.2
TOTALS	$12,551.84	$8613.00	$21,164.84	100.0	100.0	100.0

Basis Of Projects

Supervision: One-half of Riley's salary and expenses, paid by Government; blister rust expenses for Filley - $50. per month paid to clerk out of state blister rust funds.

Ribes Eradication: Owners labor, state laborers, scouts and foremen.

B.R.C.A.A: Salary and expenses of Miles and Clark, and one-half of cost for Riley- educational material.

Nursery Sanitation: Paid by state from blister rust appropriation for employing two temporary men engaged in eradicating Ribes around nurseries.

Field Data: Includes $1000.26 spent for scout work to eliminate non-pine areas, and $195.03 for study of crew methods.

STATE AND FEDERAL EXPENDITURES IN NEW YORK
DURING 1927, BY PROJECTS.

Project	Amount Paid by State	Amount Paid by Gov't.	Total Amount Paid	% Total State Exp. Paid For	% Total Gov't.Exp. Paid For	% Total Exp. (All Projects) Paid For
Supervision	-	$4,047.19	$4,047.19	-	12.8	3.5
Ribes Eradication	$45,523.96	-	$45,523.96	54.7	-	39.6
Inspection	$12,964.72	-	$12,964.72	15.6	-	11.3
B.R.C.A.A.	$2,314.48	$27,516.36	$29,830.84	2.8	87.2	26.0
Ribes Compensation	$257.46	-	$257.46	0.3	-	0.2
Field Data	$17,463.16	-	$17,463.16	20.9	-	15.2
Miscellaneous	$4,770.42	-	$4,770.42	5.7	-	4.2
TOTALS	$83,294.20	$31,563.55	$114,857.75	100.0	100.0	100.0

Basis Of Projects

Supervision: Salary and expenses of Kennedy (full time) and Stevens, January 1-June 30. No charge for McIntyre's time against blister rust funds.

Ribes Eradication: Owners labor and wages of state laborers, scouts and foremen; also, in many cases, includes subsistence expenses paid to foremen and scouts; also, transportation expenses of these men.

Inspection: Salary and expenses of eradication assistants and state camp supervisor. These expenses kept separate from project "Ribes Eradication" although closely allied to it.

B.R.C.A.A: Salary and expenses of blister rust agents, paid by Government, except expenses of Nichols- educational materials; also federal wages paid to Adey, Smith and Hinchman for part time employment.

Field Data: Cost of York, Littlefield, Snell and assistants on field studies; and temporary state men engaged in mapping white pine and other types.

SUMMARIES OF CONTROL WORK FOR ALL YEARS.

SUMMARY OF RIBES ERADICATION WORK IN THE NORTHEASTERN STATES 1917-1927.

(By Years)

Year	Acres Eradicated	Ribes Destroyed		Total Cost	Per Acre Values	
		Wild	Cult.		Ribes	Cost
1917	262,562	861,353*	69,514	$65,481.24**	3.3	$.371
1918	137,458	2,413,887	22,150	99,388.20***	18.8	.72
1919	252,043	4,549,948	27,877	137,117.05	18.2	.54
1920	270,657	4,243,983	25,936	84,843.80	15.8	.31
1921	376,745	3,191,967	15,755	68,093.70	8.5	.18
1922	476,621	4,849,812	16,061	96,818.37	10.7	.20
1923	892,639	7,969,917	55,074	160,883.87	9.0	.18
1924	1,008,042	9,466,271	73,858	169,175.52	9.4	.167
1925	834,428	7,296,670	59,458	138,491.86	8.7	.166
1926	814,439	8,838,000	51,471	148,382.91	10.8	.182
1927	894,501	8,032,574	48,738	$153,302.41	8.9	.171
TOTALS	6,220,135	61,714,382	465,892	$1,321,978.93	9.9	.215

*No Ribes figure for Connecticut in 1917.
**No cost figure for Massachusetts in 1917.
***No cost figure for Connecticut in 1918.

NOTE: Connecticut acreage for 1917 omitted in obtaining per acre Ribes figure for 1917 and grand total.

Massachusetts acreage for 1917 omitted in obtaining per acre cost figure for 1917 and grand total.

Connecticut acreage for 1918 omitted in obtaining per acre cost figure for 1918 and grand total.

(Summary does not include work done on White Mountain National Forest)

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK IN NORTHEASTERN AND LAKE STATES DURING 1917-1927.

(By States)

State	Acreage Eradicated	% Total Acreage Worked in Each State	Ribes Pulled		Total Cost	Per Acre Values	
			Wild	Cult.		Cost	Ribes
Maine	1,954,234	31.2	11,630,695	73,188	$138,327.03	$.071	5.95
N.H.	2,065,926	33.0	25,161,749	124,047	390,670.81	.19	12.2
Vt.	157,045	2.5	1,835,812	5,278	72,836.03	.464	11.7
Mass.	1,272,608	20.3	10,720,338	203,578	196,002.33*1	.165	8.42
R.I.	270,367	4.3	179,535	12,255	30,563.55	.113	0.7
Conn.	113,889	1.9	1,448,579*2	4,925	46,794.33*3	.414	13.1
N.Y.	386,066	6.2	10,737,674	42,621	446,784.85	1.16	27.8
Wisc.	28,552	.5	2,035,838	19	17,915.91	.603	71.3
Minn.	5,942	.1	407,278*4	118	15,180.23	2.55	81.7
TOTALS	6,254,629	100.0	64,157,498	466,029	$1,355,075.07	.219	10.2

*1 - No cost figure available for Massachusetts in 1917.
*2 - No Ribes figure available for Connecticut in 1917.
*3 - No cost figure available for Connecticut in 1918.
*4 - No Ribes figure available for Minnesota in 1917.

NOTE: Acreage for 1917 omitted in obtaining per acre cost figure for Massachusetts.
" " 1917 " " " " " Ribes " " Connecticut.
" " 1918 " " " " " cost " " "
" " 1917 " " " " " Ribes " " Minnesota

These acreages also omitted in obtaining per acre cost and Ribes figures for all states.

(Summary does not include work done on White Mountain National Forest)

Data for Minnesota and Wisconsin is for period 1917-1923, inclusive. No eradication work has been conducted in Minnesota since 1923. In addition to the work listed above for Wisconsin; in 1926, on the Indian Reservation at Keshina, 150 acres were reworked by the Indian Service, and an additional 100 were covered for the first time. During 1927, the state cleared 250 acres of 42,226 wild Ribes at a wage cost of $658.60. A pine owner also re-examined 50 acres of his property for Ribes.

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK
IN NORTHEASTERN AND LAKE STATES DURING 1918-1927.

(By States)

State	Acreage Eradicated	% Total Acreage Worked in Each State	Ribes Pulled		Total Cost	Per Acre Values	
			Wild	Cult.		Cost	Ribes
Maine	1,949,114	32.5	11,582,488	71,789	$134,199.03	$.069	5.9
N.H.	2,042,835	34.1	24,699,249	123,547	380,972.59	.186	12.1
Vt.	151,045	2.5	1,791,134	5,278	65,726.71	.435	11.8
Mass.	1,186,545	19.8	10,537,767	157,336	196,002.33	.165	8.9
R.I.	262,131	4.4	176,900	11,452	27,943.65	.107	0.7
Conn.	110,189	1.8	1,448,579	4,925	43,649.33*	.396	10.4
N.Y.	255,714	4.3	10,616,912	22,051	408,004.05	1.59	41.5
Wisc.	28,299	0.5	1,997,838	19	17,139.98	.605	70.5
Minn.	4,981	0.1	407,278	118	14,180.17	2.847	81.7
TOTALS	5,990,853	100.0	63,258,145	396,515	$1,287,817.84	.215	10.6

*No cost figure available for 800 acres eradicated in Connecticut during 1918. Connecticut acreage for 1918 (800 acres) omitted in obtaining per acre cost for Connecticut and grand totals.

(Summary does not include work done on White Mountain National Forest)

Data for Wisconsin and Minnesota is for period 1918-1923. No eradication work done in Minnesota since 1923. In addition to the above work listed for Wisconsin; during 1926, on the Indian Reservation at Keshina, the Indian Service reworked 150 acres and an additional 100 acres were covered for the first time. During 1927, the state cleared 250 acres of 42,226 wild Ribes at a wage cost of $658.60. A pine owner also re-examined 50 acres of his property for Ribes.

SUMMARY OF COOPERATIVE RIBES ERADICATION WORK
IN NORTHEASTERN AND LAKE STATES DURING 1918-1927.

(By Years)

Year	Acreage Eradicated	% Total Acreage Worked Each Year	Ribes Pulled		Total Cost	Per Acre Values	
			Wild	Cult.		Cost	Ribes
1918	138,938	2.3	2,532,087	22,150	$102,888.20*	$.74	18.2
1919	254,503	4.2	4,708,252	27,877	142,743.71	.56	18.5
1920	282,329	4.7	5,139,843	26,054	96,985.27	.34	18.2
1921	386,221	6.4	3,688,814	15,774	72,440.10	.187	9.5
1922	481,466	8.3	5,381,674	16,061	99,852.01	.20	11.2
1923	895,986	14.9	8,173,960	55,074	163,555.85	.182	9.1
1924	1,008,042	16.8	9,466,271	73,858	169,175.52	.167	9.4
1925	834,428	13.9	7,296,670	59,458	138,491.86	.166	8.7
1926	814,439	13.6	8,838,000	51,471	148,382.91	.182	10.8
1927	894,501	14.9	8,032,574	48,738	153,302.41	.171	8.9
TOTALS	5,990,853	100.0	63,258,145	396,515	$1,287,817.84	.215	10.6

*No cost figure available for 800 acres eradicated in Connecticut during 1918. Connecticut acreage for 1918 (800 acres) omitted in obtaining per acre cost for 1918 and grand totals.

(Summary does not include work done on White Mountain National Forest)

No eradication work conducted in Minnesota since 1923. No control work done in Wisconsin during 1924 and 1925. Above summary does not include 150 acres re-examined and 100 acres covered for the first time by the Indian Service at Keshina, Wisconsin, during 1926, and 250 acres cleared of 42,226 wild Ribes at a wage cost of $658.60 by the State in Wisconsin during 1927. A pine owner in this state also reworked 50 acres of his property which is not included in the above summary.

BLISTER RUST CONTROL WORK IN THE NORTHEASTERN STATES

RIBES ERADICATION SUMMARY 1918 – 1927

STATE	YEAR - 1918						YEAR - 1919					
	ACRES	NO. RIBES		TOTAL COST	Per Acre		ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult		Cost	Ribes
MAINE	4910	91,862	235	5179.23	1.05	18.7	9216	333,775	0	6136.10	.666	36.2
N. H.	66,282	959,315	8427	26,013.89	.39	14.47	163,413	1,659,936	21,171	32,988.35	.20	10.15
VT.	4698	78,563	77	5182.64	1.10	16.8	2460	96,749	0	2214.26	.90	39.3
MASS.	18,706	336,067	1919	15,805.31	.84	19.03	10,849	201,882	2374	8156.18	.75	18.6
R. I.	12,715	13,927	492	3527.97	.28	1.09	40,411	45,320	1657	5609.74	.14	1.12
CONN.	800	10,000	0	Private Funds	–	12.5	2500	31,000	0	2323.34	.93	12.4
N. Y.	29,337	904,153	11,000	43,679.16	1.48	30.81	23,194	2,181,286	2675	79,689.08	3.43	94.04
TOTALS	137,458	2,413,887	22,150	99,388.20	.72	18.8	252,043	4,549,948	27,877	137,117.05	.54	18.2

STATE	YEAR - 1920						YEAR - 1921					
	ACRES	NO. RIBES		TOTAL COST	Per Acre		ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	10,283	176,788	636	4994.05	.486	17.19	156,221	56,304	708	3398.76	.022	.36
N. H.	204,093	2,061,996	22,206	35,864.48	.175	10.1	137,827	1,654,443	9713	21,873.07	.159	12.0
VT.	4501	36,294	74	3391.60	.75	8.06	6319	60,537	131	3464.01	.548	9.58
MASS.	19,389	1,224,306	1421	10,422.87	.54	63.14	32,933	632,618	4631	10,290.54	.313	19.2
R. I.	23,164	3973	1350	3796.92	.16	.26	26,971	16,022	552	3826.82	.142	.59
CONN.	2170	42,793	2	1974.70	.91	19.72	8000	41,470	6	2664.07	.33	5.18
N. Y.	7057	695,833	47	24,399.18	3.46	98.6	8474	730,573	14	22,576.33	2.66	86.3
TOTALS	270,657	4,243,983	25,936	84,843.80	.31	15.8	376,745	3,191,967	15,755	68,093.70	.18	8.5

STATE	TOTALS 1918-1921					
	ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult.		Cost	Ribes
MAINE	180,630	658,729	1579	19,708.14	.109	3.6
N. H.	571,625	6,335,690	61,517	116,739.79	.204	11.1
VT.	17,978	272,143	282	14,252.51	.793	15.1
MASS.	81,877	2,414,873	10,345	44,674.90	.546	29.5
R. I.	103,261	81,242	4251	16,761.55	.162	0.8
CONN.	13,470	125,263	8	6962.11	.517	9.3
N. Y.	68,062	4,511,845	13,736	170,343.75	2.50	66.3
TOTALS	1,036,903	14,399,785	91,718	389,442.75	.376	13.9

STATE	YEAR - 1922						YEAR - 1923					
	ACRES	NO. RIBES		TOTAL COST	Per Acre		ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult.		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	190,209	449,287	3688	8012.48	.042	2.3	336,452	1,209,282	12,095	19,333.16	.057	3.6
N. H.	179,893	1,816,829	9061	28,706.64	.159	10.0	268,237	3,496,733	24,779	51,631.48	.192	13.3
VT.	13,512	201,906	812	6150.24	.455	15.0	25,190	278,570	1234	8498.43	.337	11.0
MASS.	64,302	1,578,294	2368	13,375.09	.208	24.5	201,931	1,776,107	14,887	28,411.92	.14	7.8
R. I.	11,500	11,764	132	1840.00	.16	1.02	31,308	14,275	1464	1895.96	.06	0.45
CONN.	6175	137,501	0	4651.50	.753	22.2	14,062	288,333	248	6863.14	.488	20.5
N. Y.	11,030	654,231	0	34,082.42	3.09	59.3	15,459	906,617	367	44,229.78	2.87	57.3
TOTALS	476,621	4,849,812	16,061	96,818.37	.20	10.7	892,639	7,969,917	55,074	160,883.87	.18	9.0

STATE	YEAR - 1924						YEAR - 1925					
	ACRES	NO. RIBES		TOTAL COST	Per Acre		ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	401,227	1,846,957	11,593	23,093.91	.057	5.0	274,678	1,710,015	13,041	20,257.62	.073	6.2
N. H.	326,458	4,037,011	14,989	52,837.85	.165	12.4	261,244	3,244,332	6402	44,614.97	.170	12.4
VT.	25,688	182,154	592	9280.02	.361	7.1	26,622	317,837	640	9038.12	.340	11.9
MASS.	159,776	2,023,036	38,777	34,772.98	.217	12.6	195,201	751,830	33,610	21,739.45	.111	3.8
R. I.	52,480	24,711	2953	2302.01	.044	0.5	23,640	4994	1928	1513.04	.039	0.1
CONN.	17,215	289,034	2447	5981.73	.347	16.7	16,106	272,797	684	5495.30	.341	16.9
N. Y.	25,198	1,061,368	2501	40,907.02	1.62	42.1	34,937	994,865	1153	35,787.36	1.024	28.4
TOTALS	1,008,042	9,466,271	73,858	169,175.52	.167	9.4	834,428	7,296,670	58,458	138,491.86	.166	8.7

STATE	YEAR - 1926					
	ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult.		Cost	Ribes
MAINE	304437	3,106579	17562	21,280.01	.07	10.2
N. H.	209585	3,107838	4289	45,451.75	.217	14.8
VT.	22650	257743	1404	10,253.44	.453	11.4
MASS.	189230	1,088039	25596	27,281.37	.144	5.76
R. I.	28207	17,635	203	1924.23	.068	.63
CONN.	22257	182,826	330	5062.35	.227	8.2
N. Y.	38,073	1,077340	2087	37,129.76	.975	28.3
TOTALS	814439	8,838,000	51471	148,382.91	.182	10.8

STATE	YEAR - 1927						TOTALS 1922 - 1927					
	ACRES	NO. RIBES		TOTAL COST	Per Acre		ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult		Cost	Ribes		Wild	Cult.		Cost	Ribes
MAINE	261481	2,601639	10225	22,513.71	.086	9.9	1,768,484	10,923,759	70,210	114,490.89	.065	6.2
N. H.	225793	2,660816	2510	40,970.11	.182	11.8	1,471,210	18,363,559	62,030	264,232.80	.18	12.5
VT.	19405	280,781	314	8233.95	.424	14.4	133,067	1,518,991	4996	51,474.20	.387	11.4
MASS.	294228	903,588	31,753	25,726.62	.087	3.07	1,104,668	8,122,894	146,991	151,327.43	.137	7.3
R. I.	9735	22,279	521	1700.86	.175	2.3	158,870	95,658	7201	11,182.10	.07	0.6
CONN.	20,904	152,825	1208	8633.20	.413	7.3	96,719	1,323,316	4917	36,687.22	.379	13.7
N. Y.	62,955	1,410646	2207	45,523.96	.723	22.4	187,652	6,105,067	8315	237,660.30	1.27	32.5
TOTALS	894,501	8,032,574	48,738	153,302.41	.171	8.9	4,920,670	46,453,244	304,660	867,054.94	.176	9.4

STATE	GRAND TOTALS 1918 - 1927					
	ACRES	NO. RIBES		TOTAL COST	Per Acre	
		Wild	Cult.		Cost	Ribes
MAINE	1,949,114	11,582,488	71,789	134,199.03	.069	5.9
N. H.	2,042,835	24,699,249	123,547	380,972.59	.186	12.1
VT.	151,045	1,791,134	5278	65,726.71	.435	11.8
MASS.	1,186,545	10,537,767	157,336	196,002.33	.165	8.8
R. I.	262,131	176,900	11,452	27,943.65	.107	0.67
CONN.	110,189	1,448,579	4925	43,649.33	.396	13.1
N. Y.	255,714	10,616,912	22,051	408,004.05	1.60	41.5
TOTALS	5,957,573	60,853,029	396,378	1,256,497.69	.211	10.2

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION
IN NORTHEASTERN STATES DURING PERIOD 1917-1927.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917	-	5	$42.86	-	-
1918	-	16	$6133.45	43	$7,200.00
1919	-	55	$11,960.56	38	$6,310.00
1920	-	168	9,650.14	51	$8,500.00
1921	-	142	$12,852.07	34	$5,550.00
1922	-	971	$26,512.49	59	$19,827.86
1923	698	1968	$40,969.47	122	$36,380.00
1924	1714	3059	$45,698.43	147	$47,352.81
1925	958	3069	$39,720.06	132	$40,989.90
1926	741	3283	$44,254.88*	123**	$40,425.00**
1927	894	3537	$49,040.81	125	$38,133.40
Totals	5005	16,273	$286,835.22	874	$250,668.97

*Includes $82. spent by individuals in Vermont for cultivated Ribes compensation.

**In five additional towns in Maine (not appropriating in 1926) $548.77 was available for control work from balances of 1925 appropriations.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK IN MAINE 1917-1927.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1920	-	-	-	-	-
1921	-	30	$1,163.07	-	-
1922	-	464	$4,409.32	8	$1,300.00
1923	58	1090	$8,760.34	39	$7,115.00
1924	94	1607	$10,619.58	49	$8,154.25
1925	47	1548	$9,337.30	51	$8,000.00
1926	168	1317	$9,612.67	40*	$6,725.00*
1927	138	1234	$9,324.06	43	$8,277.00
Totals	505	7290	$53,226.34	230	$39,571.25

*In five additional towns (not appropriating in 1926) $548.77 was available for control work from balances of 1925 appropriations. Also, in four towns appropriating in 1926, $47.51 was available from 1925 funds.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW HAMPSHIRE 1917-1927.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917	-	5	$42.86	-	-
1918	-	8	$810.95	43	$7,200.00
1919	-	34	$2,053.65	38	$6,310.00
1920	-	97	$4,764.37	50	$8,000.00
1921	-	23	$2,688.51	31	$4,350.00
1922	-	148	$9,398.09	49	$16,800.00
1923	-	121	$7,635.45	82	$28,765.00
1924	-	46	$2,582.27	96	$38,975.00
1925	-	30	$2,090.76	78	$32,725.00
1926	-	19	$2,734.86	81	$33,375.00
1927	-	45	$3,722.34	77	$28,800.00
Totals	-	576	$38,524.11	625	$205,300.00

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN VERMONT
1917 - 1927.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1918	-	-	-	-	-
1919	-	1	$270.00	-	-
1920	-	29	515.61	-	-
1921	-	31	$3,235.50	-	-
1922	-	125	$5,502.22	-	-
1923	3	220	$7,247.34	-	-
1924	27	246	$7,392.74	1	$100.00
1925	38	258	$8,137.50	3	$264.90
1926	53	162	$7,923.94*	1	$75.00
1927	15	118	$7,106.05	3	$56.40
Totals	136	1190	$47,330.90	8	$496.30

*Includes $82. expended by individuals for cultivated Ribes compensation.

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK IN MASSACHUSETTS 1917 - 1927.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1918	-	-	-	-	-
1919	-	15	$1,575.00	-	-
1920	-	31	$1,877.22	1	$500.00
1921	-	35	$2,434.00	3	$1200.00
1922	-	194	$3,222.67	-	-
1923	586	470	$6,894.90	-	-
1924	1564	980	$11,527.04	-	-
1925	873	890	$5,554.15	-	-
1926	507	1335	$8,302.76	-	-
1927	678	1379	$8,459.42	-	-
TOTALS	4208	5329	$49,847.16	4	$1700.00

SUMMARY OF INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK IN RHODE ISLAND 1917 - 1927.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	
1917	-	-	-
1918	-	6	$550.00
1919	-	-	-
1920	-	-	-
1921	-	-	-
1922	-	-	-
1923	34	1	$15.36
1924	-	1	$16.00
1925	-	-	-
1926	-	-	-
1927	-	-	-
TOTALS	34	8	$581.36

SUMMARY OF TOWN AND INDIVIDUAL COOPERATION IN BLISTER RUST CONTROL WORK IN CONNECTICUT 1917 - 1927.

Year	No. Individual Cooperators		Amount Spent by Individual Cooperators	No. Towns Appropriating	Amount Appropriated
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.			
1917-1921	-	-	-	-	-
1922	-	2	$760.29	2	$1727.86
1923	17	9	$867.45	1	$500.00
1924	29	18	$1139.51	1	$123.56
1925	-	23	$80.00	-	-
1926	13	80	$1411.80	1	$250.00
1927	3	47	$1470.39*	2	$1000.00
TOTALS	62	179	$5729.44	7	$3601.42

*Includes cost of time of 20 individuals ($29.75) who assisted in scout work in Connecticut. In addition, $500. was raised by individuals in one town in Connecticut.

SUMMARY OF INDIVIDUAL COOPERATION IN
BLISTER RUST CONTROL WORK IN NEW YORK
1917 - 1927.

Year	No. Individual Cooperators		Amount Spent By Individual Cooperators
	Cult. Ribes Erad. Only	Wild & Cult. Ribes Erad.	
1917	-	-	-
1918	-	2	$4,772.50
1919	-	5	$8,061.91
1920	-	11	$2,492.94
1921	-	23	$3,330.99
1922	-	38	$3,219.90
1923	-	57	$9,548.63
1924	-	161	$12,421.29
1925	-	320	$14,520.35
1926	-	370	$14,268.85
1927	60	714	$18,958.55
TOTALS	60	1660	$72,937.57

SUMMARY OF STATE COMPENSATION PAID FOR CULTIVATED RIBES DESTROYED IN THE NORTHEASTERN STATES DURING THE PERIOD 1922 - 1927, INCLUSIVE.

(By States)

State	Total Number Cultivated Ribes Removed	Number Bushes For Which Compensation Was Actually Paid	Number Persons Receiving Compensation	Amount Paid in Reimbursement.
Maine	70,210	0	0	0
N.H.	62,030	502	19	$122.42
Vt.	4,996	1,265	103	$614.16*
Mass.	146,991	13,763	139	$4448.30
R.I.	7,201	94	7	$35.85
Conn.	4,917	0	0	0
N.Y.	8,315	1,468	121	$505.11
TOTALS	304,660	17,092	389	$5725.84

*In addition, during 1926, individual cooperators in Vermont paid $82.00 compensation to 9 owners of cultivated Ribes for the removal of 164 bushes.

In Massachusetts, during 1927, 46 persons claimed $1044.65 for the destruction of 2511 bushes. These claims will not be settled until the spring of 1928. However, this Massachusetts data are included in the above table.

EXPENDITURES - EASTERN CONTROL PROGRAM

Calendar Year	Federal	State						Grand Totals
		State Appropriations	Nursery Funds	Towns	Individuals	All Others	Total	
1922	$77,377.30*	$93,537.07*	$500.00	$19,827.86	$26,512.49	-	$140,377.42	$217,754.72
1923	118,808.49	113,069.81	500.00	40,140.11	40,969.47	$6139.10	200,818.49	319,626.98
1924	122,831.96	117,121.46	882.50	48,694.20	45,026.37	7125.03	218,849.56	341,681.52
1925	131,098.84	100,352.25	753.31	40,351.31	39,720.06	1695.47	182,872.40	313,971.24
1926	130,268.07	105,917.41	614.58	41,223.95	44,254.88	2027.44	194,038.26	324,306.33
1927	132,460.90	120,566.14	3213.41	38,299.74	49,040.81	1767.50	212,887.60	345,348.50
Totals	$712,845.56	$650,564.14	$6463.80	$228,537.14	$245,524.08	$18,754.54	$1,149,843.73	$1,862,689.29

*Figures for 1922 Federal and state appropriation expenditures taken from summary prepared by C.J.P. - 5/1/28.

RIBES ERADICATION WORK ON WHITE MOUNTAIN NATIONAL FOREST
1924-1927, Inclusive.

(Data from Mr. Yarnell's letters of 12/22/27 and 1/14/28 to E. C. Filler)

Year	Acreage Examined	Ribes Pulled	Total Cost	Per acre	
				Ribes	Cost
1924	4,944	61,516	$1,702.96	12.4	$.363
1925	466	49,619	310.63	106.5	.667
1926	748	20,071	154.92*	26.8	.207
1927	226	11,350	102.73	50.2	.455
TOTALS	6,384	142,556	$2,271.24	22.3	$.356

*The State of New Hampshire paid $12.38 of this expense.

Note: The scouting costs during 1924 were abnormally high, being based on actual expenditures for salaries and expenses of Hodgkins and Black, who cost much more than ordinary scouts. Also, there was possibly some duplication of effort in using two scouts, but this was unavoidable, as Hodgkins was training Black in field methods.

SUMMARY, BY STATES, OF ACREAGE RE-ERADICATED OF RIBES
IN THE NORTHEASTERN STATES DURING PERIOD 1923-1927, INCLUSIVE.

State	1923	1924	1925	1926	1927	Totals
Maine	20	1240	644	728	1010	3,642
N.H.	630	6668	41,734	32,046	74,034	155,112
Vt.	1240	974	1396	5850	2315	11,775
Mass.	16,943	1311	4256	6145	14,942	43,597
R.I.	3240	5000	0	2670	0	10,910
Conn.	0	0	2370	570	8836	11,776
N.Y.	0	0	0	0	0	0
TOTALS	22,073	15,193	50,400	48,009	101,137	236,812

No record of any re-eradication work prior to 1923. Detailed figures as to Ribes and costs are not available, except for 1926 and 1927. A summary for 1927 is given in this report on pages 54-56. The 1926 re-eradication data on Ribes and costs are available for all states, except Massachusetts.

Summary of each agent's work for 1926 and 1927 given in supplementary report submitted herewith.